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ABSTRACT

The research findings and literature compiled and summarized in this report seek to identify those characteristics possessed by school districts that are associated with quality education and effective utilization of resources. The report is designed to serve as a resource for those involved in evaluating present school district and school organization structure and in planning to improve education through the development of stronger, more effective educational administrative units and attendance centers. The findings should be of equal interest to educators, school board members, government officials, parents, and other electors interested in improving education. Following an initial narrative report on research in educational planning, twelve summary tables of research findings are provided. These tables offer data on factors related to elementary, junior, and senior high schools; comparative findings between high school size and (1) pupil achievement, (2) per pupil costs, (3) curricular offerings, (4) staff qualifications, (5) extracurricular programs, and (6) miscellaneous factors; factors related to school size in general; educational administrative unit size; and State enrollment guidelines for administrative units. A 140-item bibliography is included. (Author/EA)

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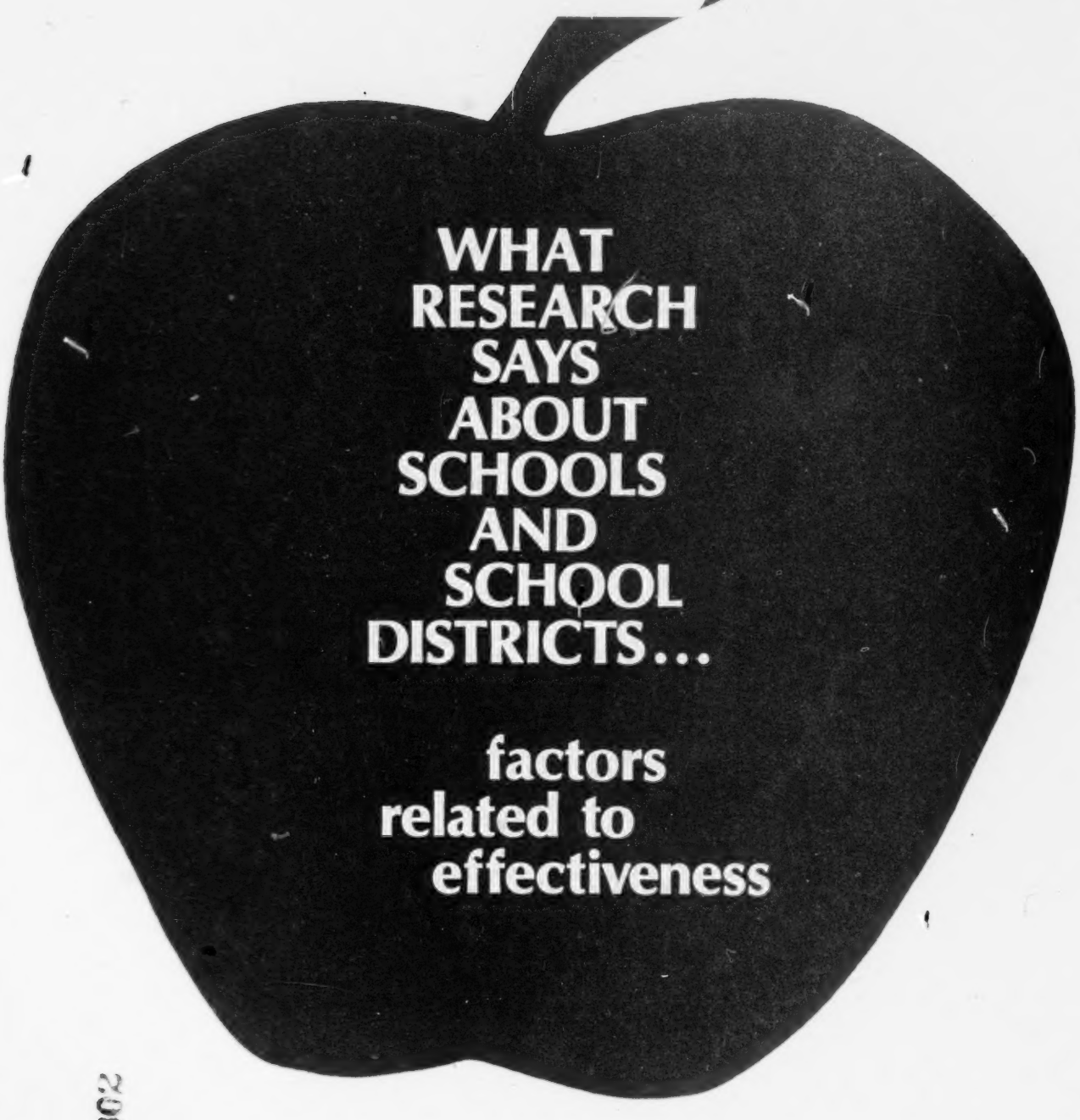

WHAT RESEARCH SAYS ABOUT SCHOOLS AND SCHOOL DISTRICTS...

factors related to effectiveness

EA 005 802

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WHAT RESEARCH SAYS ABOUT SCHOOLS AND SCHOOL DISTRICTS . . .

factors related to effectiveness

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WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION
Dr. Barbara Thompson, State Superintendent

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Foreword

Local school districts, unique to the United States, are the organizational structures which marshall and utilize resources needed to provide the best possible settings in which learning can take place. The type and quality of educational opportunities provided boys and girls in our public elementary and secondary schools is influenced to a considerable extent by the nature of the local school districts and their capabilities to function effectively and efficiently.

To assure every Wisconsin child an adequate education, the state constitution directed the legislature to establish district schools "...which shall be as nearly uniform as practicable..." Although education is clearly a state responsibility, much of the responsibility for the management and control of schools, including control over how they are organized, has been delegated to electors of local school districts. Agency School Committees have been charged with the responsibility of developing long-range plans for strengthening local districts where deemed necessary. Reorganization or consolidation of districts may be suggested and encouraged as a means of achieving this and improving education, however, changes in existing districts cannot generally be made unless they are accepted and approved by local electors.

Local electors, in exercising such control, must also accept important responsibilities. They must be willing and able to objectively evaluate their districts and the educational programs they provide. This means that they must understand what constitutes an effective district, good schools, and desirable educational programs and services. Where programs and services fall short of meeting established goals and strengthening of district structure is suggested, electors must also be acquainted with and able to evaluate the various alternatives open to them. An education is a personal thing and size of district is but one of the variables which relate to providing opportunities for boys and girls.

If local electors are to make sound decisions affecting the educational welfare of children, it is essential that they be as well informed as possible. This publication has been prepared to provide information to those interested and responsible for improving education. It is a compilation of research and literature related to factors which may relate to how effectively school districts and schools function. It is hoped that this information will be helpful to those establishing standards and guidelines for evaluating existing organizational structure and proposed changes in them. Our aim is to provide data to assist in local decision making as citizens work to custom make their districts to care for local and unique needs.

Barbara Thompson

Dr. Barbara Thompson
State Superintendent

Preface

The research findings and literature compiled and summarized in this report seek to identify those characteristics possessed by school districts which are associated with quality education and effective utilization of resources. While this report was prepared primarily to strengthen the perception of Agency School Committees as to what consititutes a good school district as well as to aid them in fulfilling their statutory role of long-range planning for desirable school district administrative units, it was felt that the findings might be of equal interest and significance to educators, school board members, government officals, parents and other electors interested in improving education.

The preponderance of research supports the concept that adequate numbers of students are required to enable a school district to organize, finance and administer a broadly-based school program with efficiency and economy. Conversely, studies carried out annually in Wisconsin show that generally the smaller the school district, the fewer the school offerings and services, and the higher the per pupil costs. The prime concern in planning for better education should be the quality and scope of the educational program and services for youth. The number of high school students or total school population per se are important only so as it can facilitate the achievement of educational objectives. Factors, such as efficiency and economy, however, cannot be ignored, particularly when the local school district relies extensevely upon sources of financing other than the local property tax.

Presently there remains to be solved in Wisconsin the issue of the ways and means of providing even greater state support for our public elementary and secondary schools. Wisconsin, like a number of other states, is also faced with court decisions on the issues of the equal protection clause of the 14th amendment and the state's constitutional requirement for "the establishment of district schools, which shall be as nearly uniform as practicable". Sweeping changes are predicted for Wisconsin and the majority of other states in consequence of the resolution of such issues.

Since the electors of Wisconsin's school districts have the right to exercise their choice, if they so desire, in the decision-making process, they should have access to extensive facts and data concerning the characteristics of

good school districts and schools so that decisions reached will be in the best interests of children and the communities in which they reside. Educational associations such as teacher organizations, administrators and school board groups, as well as citizen groups, must provide positive leadership and encourage study, discussion and objective evaluation of facts as they decide what kind of school districts can do the best job for all children and youth. Too often, unfortunately, factors other than the educational welfare of children override the concerns for and the needs of children.

Information in this report has been compiled for use by those who must evaluate the school districts in our state and proposals for changing them. Such assessment must be based on the kinds of resources school districts should possess to function effectively and efficiently in meeting the expectations of society. We hope that you will find this report to be a useful resource in making such determinations.

Henry A. Olson

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Assistant Superintendent
Division for Field Services

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Research in Educational Planning

This report is a review of research and literature concerning factors that determine how effectively and efficiently school districts and attendance centers function. It is designed to serve as a resource for those involved in (1) evaluating present school district and school organization structure, and (2) planning to improve education through the development of stronger, more effective educational administrative units and attendance centers.

Through the history of Wisconsin it has been recognized that a sound foundation of local school districts was basic and essential to the development of a strong state educational system. The Constitution set the goal for education in directing the state legislature to ". . . provide by law for the establishment of district schools, which shall be as nearly uniform as practicable . . ."[1] Today, however, a century and a quarter after this charge was made, we are still striving to achieve the goal of providing every boy and girl quality and comprehensive educational opportunities on as equal a basis as possible.

Despite sincere efforts to improve and equalize education, there are still wide differences in the quality and comprehensiveness of the opportunities provided children among the districts in the state. Such differences are primarily the result of wide differences in the capabilities of local districts to provide and support education and to function effectively and efficiently.

We are also becoming more and more conscious of the fact that resources for education are not unlimited. It is important that local school districts are capable of utilizing resources efficiently so that taxpayers are assured of getting the most education possible per tax dollar expended.

Wisconsin's Agency School Committees have been given the responsibility of formulating plans for the development of local school districts that are capable of providing comprehensive programs and services " . . . which meet the present and future educational needs of the children of the state and which can function with efficiency and at a justifiable cost to the local taxpayers and to the state."[2] Of the many problems facing education, the problem of developing adequate local districts is basic. All other problems, including programs for state and local financing of education, improved curriculum and educational opportunities and the level of local

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[1]Wisconsin Constitution, Article X, Section 3.

[2]Section 116.51(2), Wisconsin Statutes.

effort required to provide such opportunities, will not be resolved satisfactorily until this problem is resolved. Nor will these problems be resolved until it is recognized that districts with limited resources and enrollments simply may not be capable of doing the job effectively regardless of how much local and state support is provided. Over a quarter of a century ago a committee studying means of improving educational opportunities in Wisconsin's rural areas concluded that:

> "No system of apportioning state aids can be defended if those aids are distributed--or dissipated--through an inefficient, indefensible, system of local units. It would be like 'pouring more sand in a rat hole' to increase state aids, or even try to perfect the formula by which they are apportioned until local districts are reorganized."[3]

School district consolidation or reorganization is considered by many as the most direct and effective means of developing stronger school districts. It is also often the most controversial and difficult to realize because of strong local resistance to change, especially when the change involves the elimination of established attendance centers as well as school district boundaries.

Various alternative plans designed to improve the small school district's ability to provide broader programs and services have been proposed and some are being followed. In the most common of such plans, districts work together, sharing special personnel and facilities to enable them to jointly provide educational opportunities that they could not practically provide alone. Special personnel and services are also available on a shared-time basis through Cooperative Educational Service Agencies. Special plans, such as the bimester and trimester, and flexible or modular class schedules, have been developed to expand course offerings at the high school level. Modern technology has developed such things as educational TV and telephone networks, and special audio-visual devices and materials that make it possible to bring some special programs to students in the smallest and remotest of districts.

What is a good or an adequate school district? What is a comprehensive educational program? Does school or school district size make a difference? What is the best size for a high school (or elementary or junior high school)? When is a school district (or school) too small or too big? There has been considerable interest in such questions because of widespread attempts to strengthen school district structure through consolidation and reorganization. Interest has intensified in recent years as the result of increased demands for improved education for all children, and for more efficient utilization and equitable distribution of the resources available for education. These are questions that school boards, administrators, agency school committees and citizens interested in better education must seek answers for. Only with answers to such

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[3]Committee on Rural Community High Schools, "Education for Wisconsin's Tomorrow," Lake Mills, Wisconsin: Rural Life Publishing Co., 1946, p. 25.

questions can existing school districts be evaluated objectively and plans developed for strengthening them or organizing them into more effective administrative units.

Over the past few decades a great deal of research has been conducted and literature accumulated which is concerned with the characteristics of adequate or desirable school districts, schools and educational programs. The findings of such studies, many of which are reviewed in this report, can provide valuable information to those interested in better education. Summaries of such findings have been compiled in the series of tables listed below to facilitate locating and using the information. A complete bibliography of all information sources is also a valuable part of this report.

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The importance of establishing desirable standards for school districts and schools as an important and necessary step in planning for better education has been recognized and stressed by educational planners. Such standards are essential for objectively evaluating existing school districts and schools in determining whether changes should be considered or not. Standards are also essential to serve as guidelines in planning and assessing proposed changes.

Underlying such standards must be clear educational objectives. An example of objectives which might serve as guidelines in developing standards are the following:

1. Every school district should offer comprehensive educational programs at all levels which meet the present and future educational needs of every boy and girl.

2. Each district should provide or make available a complete range of educational services, including special and remedial programs for the mentally and physically handicapped, special opportunities for the gifted, as well as health, guidance and counseling services for all students.

3. Districts should be capable of providing all students with qualified, capable classroom teachers and special personnel and of assigning and utilizing such professional personnel effectively and efficiently.

4. School districts should be organized into units capable of providing quality educational opportunities to every boy and girl throughout the state on as equitable a basis as possible, including the local tax effort required to support such programs.

5. School districts should be organized into units that can assure the most effective and efficient utilization of available resources and the greatest return for the public's investment in education.

It has been generally assumed that size in terms of enrollments is the most important single factor to be considered in planning for more effective school district organization. A look at the summary of research and literature generally supports this assumption. Size, however, is only one of a number of factors that must be considered. Size in itself is important only as it is related to the objectives of education upon which standards for schools or school district organization are based.

With educational objectives established, it is then possible to develop standards for desirable school districts and attendance centers. It is here that the information in reports such as this can be very helpful. Following are examples of how the literature can be related to educational objectives in developing sound standards for school districts and schools that are capable of efficiently providing the types and quality of educational opportunities that all boys and girls are entitled to today.

OBJECTIVE 1: Every school district should offer comprehensive educational programs at all levels which meet the present and future educational needs of every boy and girl.

Broad, comprehensive programs are basic and essential if schools are to meet the widely varied needs of every individual student. The narrow, largely college preparatory programs of yesterday, and still characteristic of too many programs today, do not satisfactorily meet the needs of youth in our rapidly changing, modern, complex society. Schools can

no longer be considered good or adequate if all pupils are expected to fit into a single educational mold with very limited alternative programs to choose from.

The literature is overwhelming and indisputable. There is a direct relationship between the size of a school and the breadth or comprehensiveness of the educational opportunities which can be and are generally provided. In Wisconsin, for example, studies made year after year relating high school course offerings to high school size have always shown this relationship. In 1971-72, for example, the following was found:

RELATIONSHIP BETWEEN WISCONSIN HIGH SCHOOL SIZE AND AVERAGE NUMBERS OF HIGH SCHOOL COURSES PROVIDED

1971-72 School Year

High School (9-12) Enrollment Range	Average High School Course Offerings		
	General[a]	Vocational[b]	Total
Under 100	19	11	30
100 to 199	26	17	43
200 to 299	28	19	47
300 to 399	31	22	53
400 to 499	34	23	57
500 to 749	38	26	64
750 to 999	44	29	73
1,000 to 1,499	47	30	77
1,500 and Over	64	37	101
State Average	36	24	60

[a]General academic and enrichment courses
[b]Vocationally oriented courses

Most research concerning school effectiveness has been directed at the high school level as it is the high school program that is generally considered to be most limited by inadequate enrollments and benefits the greatest when districts are organized into more adequate units. Serving the unique and special needs of boys and girls at the junior high or middle school level also requires specially trained personnel and special enrichment and exploratory programs that are generally not possible without adequate enrollments. This is also true at the elementary level, however, enrollments are not considered to be so critical there. It is important that the quality of programs at all levels be considered and not just the high school programs.

The findings in Wisconsin districts are consistent with those in other states as is evident in a review of the literature. It is apparent that adequate school and school district enrollments are therefore a realistic and important requisite in organizing effective school districts.

OBJECTIVE 2: Each district should provide or make available a complete range of educational services, including special and remedial programs for the mentally and physically handicapped, special opportunities for the gifted, as well as health, guidance and counseling services for all students.

This objective is closely associated with the first objective suggested. The literature consistently indicates that for a district to be capable of providing special and supportive programs requiring specialists and technical personnel, it must have sufficient pupils to make efficient use of and to justify the employment of such personnel.

A review of the literature shows that an administrative unit serving 10,000 pupils is most frequently mentioned as needed to provide and support a full range of special and supportive services and make effective use of the special staff personnel required. Of Wisconsin's 382 districts operating high schools (1972-73), only 14 or about one out of 27, meet this criteria.

Wisconsin's intermediate Cooperative Educational Service Agencies (CESA's) make it possible for districts to provide special services and personnel on a shared-time basis. In 1972-73, for example, 109 speech therapists, 92 special education teachers and 67 psychologists were employed on a shared basis by school districts through CESA's. Although such services are available to most school districts, many do not take advantage of them or the extent of services contracted for is minimal.

Too often, the districts with the most limited services do not take advantage of such opportunities to expand their services. The table below shows that the Wisconsin districts enrolling under 200 in high school, districts offering the most limited services, averaged only about one-half of one special services person per school in 1971-72 or hardly enough to meet the special needs of all pupils.

SHARED SERVICES PERSONNEL EMPLOYED THROUGH CESA'S
BY SMALL WISCONSIN DISTRICTS IN 1971-72

9-12 Enrollment Range	Number Districts	Total Shared-Time Personnel Employed	Average F.T.E.[a] Special Personnel Per District
Under 100	6	1.20	.20
100 to 199	54	31.52	.59
Totals	60	32.72	.52

[a]Full-time equivalent

OBJECTIVE 3: Districts should be capable of providing all students with qualified, capable classroom teachers and special personnel and of assigning and utilizing such professional personnel effectively and efficiently.

Capable teachers and professional staff members are basic to a good educational system. Major educational costs are for professional staff salaries. Therefore, it is important that such staff members be utilized as effectively and efficiently as possible.

It has long been recognized that elementary teachers are most effective teaching a single grade level. At the junior and high school levels, teachers perform best in their major fields of preparation and interest and with a minimum of different class preparations per day.

Studies have shown that school districts with adequate enrollments are able to assign and utilize professional personnel more effectively. The literature indicates that larger school districts are more apt to attract and hold better qualified, more experienced teachers. Studies have found excessively low pupil/staff ratios in small schools and school districts. The following table shows that pupil/staff ratios at the elementary level in Wisconsin school districts tend to be much the same in districts of different size. However, they tend to be much lower at the high school level in small school districts despite the fact that high schools in such districts offer more limited programs and services.

RELATIONSHIP OF WISCONSIN SCHOOL DISTRICT
SIZE AND PUPIL/STAFF RATIOS

1972-73 School Year

School District High School (9-12) Enrollments	Pupil/Staff Ratios	
	Elementary (K-8)	High School (9-12)
Under 300	19.1 to 1	13.9 to 1
300 to 499	19.6 to 1	16.1 to 1
500 to 999	19.3 to 1	16.8 to 1
1,000 to 1,499	18.9 to 1	17.8 to 1
1,500 and Over	18.6 to 1	18.1 to 1
State Average	18.9 to 1	17.1 to 1

The small high school which has but one section of physics and one of chemistry, for example, finds it more difficult to attract and hold a specialist in these fields where a major portion of his time will be spent teaching in other fields where he has less competence and interest. Thus, the larger school is more apt to provide a more desirable teaching situation.

OBJECTIVE 4: School districts should be organized into units capable of providing quality educational opportunities to every boy and girl throughout the state on as equitable as basis as possible, including the local tax effort required to support such programs.

It has been pointed out that although our State Constitution calls for the establishment of school districts that are as nearly uniform as practicable, wide differences exist in the quality and comprehensiveness of educational opportunities provided, the resources available for education and the efforts made to support education among the districts of the state. Some of these extreme differences are shown in the table below.

SOME DIFFERENCES IN WISCONSIN SCHOOL DISTRICTS

1972-73 School Year

District Characteristic	Range in State		State
	Lowest	Highest	Average
Valuation per pupil	$15,235	$153,784	$38,605
Total costs per K-12 pupil	659	1,517	946
Total school tax rate	9.95M	33.66M	20.10M
High school course offerings (1971-72)	12	149	60

Some of the inequalities in educational opportunities available in districts are directly related to school district size in terms of enrollments. Studies have consistently shown a significant and direct relationship between district size and the breadth and quality of educational programs and services provided (see Objective 1). Neither per pupil expenditures for education nor total school tax rates, on the other hand, are necessarily related to the quality or comprehensiveness of the educational programs provided. Per pupil costs in the smallest districts offering the most limited programs are very apt to be considerably higher than in districts offering the highest quality and broadest of programs.

Because school tax rates are related to the amount of taxable property behind each pupil as well as the amounts expended for educational purposes, high school taxes do not necessarily mean good education. How efficiently districts utilize staff members, facilities and equipment varies considerably between districts and is also related to district size. Some districts are able to provide significantly more education per tax dollar than less efficient districts. Relationships between district size, per pupil costs and state and local efforts to support education are shown in the following table.

RELATIONSHIP BETWEEN WISCONSIN SCHOOL DISTRICT SIZE, PER PUPIL COSTS, SCHOOL TAX RATES AND STATE AIDS

1972-73 School Year

High School (9-12) Enrollment Range	Avg. Operating Costs Per Pupil	Average Total School Tax Rates	Average State Aids Per Res. Pupil ADM
Under 100	$1,291	14.91M	$116
Under 300	948	18.67	356
300 to 499	894	19.53	335
500 to 999	901	19.63	277
1,000 and Over	961	20.50	205
State Average	$ 946	20.12M	$246

Because per pupil operating costs and the quality of education are not necessarily directly related, any meaningful comparison of such costs must also take into consideration the educational services and programs being provided. For example, per pupil operating costs in districts enrolling fewer than 300 in high school averaged $948 (1972-73) or slightly less than the average of $961 in districts enrolling over 1,000 in high school. High school students in the smaller districts, however, were offered on the average only about half as many different courses as those in the larger districts (45 to 92 courses in 1971-72). More extensive and varied special programs and services, not feasible in small districts, can be practically provided in districts with sufficient students to justify them. The amount of education a dollar "buys" can therefore vary considerably among different districts.

OBJECTIVE 5: School districts should be organized into units that can assure the most effective and efficient utilization of available resources and the greatest return for the public's investment in education.

How well districts function is also determined by how they are organized both in terms of (1) the type of school district government, and (2) how their educational programs are organized and facilities are utilized.

Most Wisconsin districts are K-12 districts which provide the total elementary and secondary school programs. There are presently 12 union high school districts with 54 separate and independent elementary districts in Wisconsin (1973). These districts have consistently been found to function less effectively and efficiently than K-12 districts. Studies have shown that too often the union high school district does not make possible equal or even quality educational programs and services, especially at the elementary level.

There are often wide variations in the ability and efforts of elementary districts to provide good education within the same union high school district.

Often the independent elementary districts are too small to enable them to provide special instructional programs and services in areas such as music, art, physical education, kindergarten and guidance. Small elementary districts are not able to provide important special enrichment and exploratory programs at the middle or junior high school level.

When per pupil costs and tax rates in union high districts are compared to those in K-12 districts, it is clear that taxpayers are paying more to operate such districts. The following table shows that in 1972-73 the average operating cost per K-12 pupil was $116 or 12.3% more than the state average in all districts operating high schools. Even elementary school operating costs averaged $84 per pupil or 9.7% more than the estimated average in all districts of the state. Although the average school tax rate in union high school districts was only slightly higher than the state average, this does not show the wide tax variations and inequalities that existed in such districts. Total school tax rates in union high school districts ranged from 9.95M to 33.66M and varied as much as 10.2M within the same high school district. The following table shows some of these comparisons:

COMPARISON OF PER PUPIL COSTS AND TOTAL SCHOOL TAX RATES IN UNION HIGH SCHOOL DISTRICTS AND ALL DISTRICTS OPERATING HIGH SCHOOLS
(Wisconsin - 1972-73 School Year)

Factors Compared	State Averages - 1972-73: Union High School And Elementary Districts[a]	State Averages - 1972-73: All Districts Operating High Schools[a]	Differences - UHS Over All Districts Operating High Schools (Averages)
a. Total operating cost per K-12 pupil ADM	$1,062[b]	$946	$+116 (+12.3%)
b. Total operating cost per elementary (K-8) pupil ADM	$ 952	$868[c]	$+ 84 (+ 9.7%)
c. Total school tax rate (mills)	20.43M[d]	20.10M	+.33M (+ 1.6%)

a - There are 12 union high school districts and 54 independent elementary districts (Fall, 1973) which make up 15.1% of the total 436 Wisconsin districts. All other districts are K-12 districts.
b - Union high and elementary district costs totaled and divided by total UHS district K-12 enrollments.
c - Based on a ratio of elementary to high school costs (1.3 to 1.0) established by the Department of Public Instruction for computation of tuition.
d - Union high plus elementary district school taxes.

How a district's educational program is organized and how facilities are utilized also determine how effectively and efficiently the district functions. A district which operates a number of small elementary centers, for example, cannot utilize special instructional personnel facilities and equipment or operate as efficiently as one with fewer and larger, more adequate centers. If it operates small elementary centers with grades K-8, it obviously cannot provide a good departmentalized middle or junior high school program with enrichment programs in areas such as industrial education, home economics, business education and foreign languages.

Summary Tables

WHAT RESEARCH SAYS ABOUT
SCHOOLS AND SCHOOL DISTRICTS
...factors related to effectiveness

Table 1 - FACTORS RELATED TO ELEMENTARY SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1970	Adams, Raymond S. Kimble, Richard M. Marlin, Marjorie (1)	Questionnaire to 4345 teachers in 371 schools ranging in size from 5 to 4200 pupils. Factors considered: Teaching styles, school size, organizational level.	Found variation explainable by size was slight-made no recommendations as to elementary school size.
1968	Purdy, Ralph D. (107)	Survey of Ohio Department of Elementary school principals.	Recommended the following enrollments for elementary centers (nursery to grade 8): Minimum 300 Optimum 500 Maximum 750
1968	Whitt, Robert L. (136)	Business management of schools.	Recommended minimum of 300-500 pupils in grades K-6; maximum 900.
1967	Morphet, Edgar Johns, Roe L. Reller, Theodore L. (86)	Organizational guidelines suggested after considering factors.	Recommended 200-700 pupils in grades K-6.
1965	George Peabody College for Teachers, Division of Surveys and Field Services (46)	Survey of Georgia school system and schools considering operational efficiency, per pupil costs, teachers assignments in major fields, curriculum offerings, special services, pupil achievement, counseling and library programs.	Recommended minimum of one teacher per grade, two sections in grade 7. Minimum enrollment 240. Optimum would be three sections per grade; 500-720 pupils; travel time not to exceed 1 hour each way.
1964	Strong, Will R. (125)	Sample of 1054 6th grade pupils and 3rd and 6th grade teachers in 17 large Hamilton County schools. Considered pupil achievement and teacher preference.	Teachers prefer "medium-sized schools"-found size of elementary school relatively unimportant when socio-economic and IQ levels of pupils are comparable.
1965	Wisconsin Department of Public Instruction (127)	Factors required to assure a good educational program and to avoid inefficiency.	Minimum enrollment of 300-350 in each K-6 attendance center.

Table 1 Cont.nued - Elementary School Size

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1962	Miller, Van (80)	Elementary school size as related to conduciveness to professional stimulation and flexibility.	Recommended at least 2 classes or sections per grade level; with a 25:1 pupil-teacher ratio. A K-6 attendance center should have a minimum of 350 pupils.
1962	Sollars, Ralph D. (120)	Survey of principals, teachers, and pupils in 30 elementary (1-6) schools in central Ohio ranging in size from under 100 to over 900 pupils. Considered costs institutional, principal, program, pupil and teacher indicators.	Concluded elementary school with 300-499 pupils most desirable.
1961	Morphet, Edgar L. Ross, John G. (85)	Study of relationships between school age and educational programs.	Concluded that California districts operating elementary schools only with enrollments of less than 900 were too small to legally and practically assume full responsibility for the nature and quality of the educational program.
1961	Robinson, Glen (112)	Opinion poll of 721 elementary principals conducted by the NEA Research Division regarding school size and effective instruction, supervision and administration.	Median response favored elementary school with 421 pupils as most desirable.
1960	Davis, Roy L. (29)	National Health Survey for July 1957 to July 1958 - data points to problems confronting schools in providing health services.	Survey found that for every 1000 children under 15 years of age: 41 had a chronic or permanent defect which would necessitate special services.
1959	Hubbard, Frank W. (56)	Review of literature considering various factors.	Recommended 400-800 pupils in elementary schools.
1954	MacVittie, Robert (73)	Building and space economies, provisions for lunch facilities health programs and school activities.	Optimum size for an elementary attendance center 300 to 400 pupils with provision of 12 to 14 rooms.
1954	National Education Association Department of Elementary School Principals (92)	Resolution after considering various factors.	Recommended maximum class size of 25 and 500 in attendance center.

Table 1 Continued - Elementary School Size

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1954	Nation's Schools (94)	Superintendents' opinion poll.	70 percent of respondents favored 250 to 500 in an elementary school; 50 percent favored 350 to 500.
1954	Theophilus, Washawa Singh (126)	Pupil achievement as measured by the Iowa Tests of Basic Skills in Iowa elementary schools with 200 or more pupils.	Found achievement increased as size of schools increased.
1953	Engelhardt, N.L. Engelhardt, N.L.,Jr Leggett, Stanton (37)	Observations of pupil learning, parent participation, staff planning by Dr. Gordon McKenzie Teachers College, Columbia University.	Maximum of 12-15 classrooms with 15 staff members; 350 pupils in grades K-6 or 2 sections per grade recommended.
1949	National Education Association, Research Division (93)	Review of literature, state studies and Commission deliberations considering various factors.	Recommended a minimum of 175 pupils and 7 full-time teachers in grades K-6. 300 pupils with 12 full-time teachers better.
1947	Grieder, Calvin (48)	Educational costs as related to school size.	Greatest economy reached in elementary schools with an enrollment of 400 children.
1934	Dawson, Howard A. (30)	Review of literature and summary of expert opinion considering various factors.	Recommended minimum of 240 pupils per elementary attendance center.
1932	Nelson, Thomas L. (95)	Survey of literature relating to elementary pupils achievement and school size.	Found 22 of 24 researchers found a higher level of achievement in the larger schools. Study of San Francisco area elementary schools inconclusive.

Table 2 - FACTORS RELATED TO JUNIOR HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1970	Adams, Raymond S. Kimble, Richard M. Marlin, Marjorie (1)	Used questionnaire to 4135 teachers in 391 schools ranging in size from 5 to 4200 pupils in looking at teaching styles, school size, organizational level.	No recommendations, found amount of variation explainable by size was slight.
1968	Whitt, Robert L. (136)	Considered factors related to organization for business management.	Recommended minimum of 100 in grade 9, 300-500 in grades 7-9.

Table 2 Continued - Junior High School Size

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1967	Morphet, Edgar Reller, Theodore Johns, Roe L. (86)	Review of literature considering various factors.	Recommended 300-900 pupils in junior high school.
1966	Vars, Gordon F. (132)	Recommendation based on opinion of junior high principals - NASSP Committee on Junior High School Education.	Recommended 750 to 1100 pupils in junior high.
1962	Street, Paul Powell, James H. Hamblen, John (124)	Studied pupil achievement of grade 7 and 8 pupils in two eastern Kentucky mining districts, enrollments ranging from under 100 to 836.	Recommended 300 or more pupils in junior high - found students in schools of over 300 demonstrated higher achievement than those in smaller schools.
1961	Garcia, Genero Bruno (44)	Visits to 20 7-9 grade junior highs in Southern California; surveyed 2028 pupils, 894 teachers and 210 principals. Looked at curriculum offerings, student activities, staff qualifications, teacher-pupil relations.	Recommended 1200 pupil optimum, 1000 minimum (but no serious modifications down to 750); 1400 upper limit recommended but 1000 absolute maximum.
1960	Crocker, Jack W. (28)	Used a questionnaire to teachers and administrators in 2-year and 3-year junior high schools in Alabama to get data on teacher preparation and variety of course offerings.	Teacher preparation best in schools enrolling 501-750 pupils. Made no specific recommendations.
1949	National Education Association; Research Division (93)	Recommendation represents median of 914 respondents in school systems in cities of 2500 or more population.	521 pupils minimum.
1948	National Commission on School District Reorganization (90)	Review of literature, state studies and Commission deliberations.	Recommended 300 pupils minimum or 75 of each age group with 12 full-time teachers.
1934	Dawson, Howard A. (30)	Review of research and summary of expert opinion.	Recommended 245 pupils minimum in junior high.

Table 3 - PUPIL ACHIEVEMENT OR SUCCESS AS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1971	Kreitlow, Burton W. (68)	20-year longitudinal study starting in 1949 of the effects of school district reorganization on students and communities in Wisconsin.	Students in reorganized districts had consistently higher achievement test scores, completed high school with a 6- and a 13-month advantage in mental maturity for boys and girls respectively as well as a higher matriculation in college.
1971	Rimm, Sylvia B. (111)	3476 University of Wisconsin freshmen (1969-70 class) study correlated high school size with college performance class size intervals same as Clement's study (7 groups from 1-25 to 751 and over)	Found no significant difference in (a) 1st semester or curriculative GPA of freshman, (b) attrition rates or percentage of students in good standing, (c) performance variables, ranks, etc., or (d) choice of major among students coming from various sized schools.
1970	Cashen, Valjean H. (18)	A study of college achievement of 206 first semester freshmen in general psychology at Illinois State University.	Recommended high school size indicated 301-500 pupils.
1969	Baird, Leonard L. (5)	3 percent sample (21,371) of college applicants taking American College Testing program tests between Nov. 1965 and Oct. 1966 in graduating classes less than 25 to over 400; follow-up study of American College Survey of 5,123 sophmores in 1965.	High school and college achievement are related negatively to high school and college size - little carry over of high achievement from high school to college.
1969	Clements, William (20)	A study of staying power of 1965, 1967 and 1968 freshmen classes at Wisconsin State University (Stevens Point) related to high school size. (same as Coker Study)	Data indicates a graduating class of 1-25 had advantages unless potential as measured by high school rank is considered. Holding high school rank constant, smaller schools had fewer dropouts than larger schools; class size of 1-25 had significantly lower percent of drops from students who ranked in lower half of high school class.

Table 3 Continued - High School Achievement and Success

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1969	Minnesota Public School Survey Committee (81)	Survey of pupil achievement all Minnesota public high school juniors taking scholastic aptitude test - schools ranged from less than 225 to over 2016.	Found students in larger schools scored higher but also had higher educational attainment of fathers.
1968	Coker, David L. (21)	Persistence of entering Freshmen classes at Wisconsin State University at Stevens Point, River Falls, Whitewater, Menomonie and LaCrosse grouped according to graduating class size: 0-25, 26-50, 51-100, 101-250, 251-500, 501-750, 751-999.	Results indicate that students graduating from a class of 250 or fewer may be more likely to persist than those who graduate from classes of 250 or more.
1965	Downey, Lawrence (34)	Matriculation scores of a sample of 7889 rural and urban students grouped according to 3-year high school size. 3-year enrollment category: under 40, 40-99, 100-199, 200-299, over 300.	Students in rural schools have less chance of success than urban students; students from very small high schools have little chance of success in matriculation; students of larger rural high schools did not achieve as well as was expected, reason not clear.
1962	Flanagan, John C. (42)	Senior classes in 206 public high schools involved in Project Talent in towns between 2500 and 25,000 population with only one high school.	Slight correlation between size of 12th grade class and achievement in various standardized tests - concluded size not closely related to pupil achievement.
1962	Lins, J. L. Abell, A. P. Hutchins, H. C. (71)	Grade point average of University of Wisconsin freshmen from schools grouped according to high school size: 1-49; 50-99; 100-199; 200-299; 300-399; 399 and over.	Found no association between high school class size and first semester grade point average.
1961	Gray, Stuart C. (47)	Graduates of Iowa public secondary schools grouped according to high school enrollments a - 1000 and above b - 400 to 999 c - 150 to 399 d - 1 to 149	Found very small differences in achievement as measured by Iowa test of Educational Development; the smaller differences favored larger schools. Graduates of high schools between 400 and 999 had highest proportion enrolled in colleges and obtained higher college freshmen grades than those from smaller or larger schools.

Table 3 Continued - High School Achievement and Success

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1961	Harmon, Lindsey (53)	Examined the high school backgrounds of all 1958 doctorate recipients from American Universities from high schools grouped by class size: 1-9; 10-19; 20-39; 40-59; 60-99, 100-199; 200-399; 400-599; 600-799, 800+	Found disproportionate number of doctorates received by persons who graduated from high school class of 800 or more. Schools with under 100 in graduating class had fewer than national norms. Confirmed Conant's recommendation of 100 or more in graduating class.
1961	Jantze, Ralph D. (61)	46 Nebraska secondary schools which administered the Iowa tests of Educational Development with enrollments ranging from under 100 to 800 and over pupils.	Achievement increased as enrollment increased to between 400 and 799; further increases in size were correlated with decreased achievement.
1961	Smith, Fay W. (119)	Pupil achievement as measured by ACT scores - seniors from Arkansas high schools in five enrollment categories; 150 or less; 200-350; 400-550; 600-750; over 750.	Seniors in three largest school categories (over 400) scored highest.
1961	Weaver, Charles H. (134)	117 North Carolina high schools and 100 college freshmen in 1956 chosen as the basis of size of high school. Grouped by high school size: 100 or less, 101-350, 351-500, 501-750, and above 750.	Students in small high schools did not achieve as well at the college level as did students from larger schools. Greater percent of dropouts in small high schools. Study favored 500 minimum high school enrollment.
1960	Lathrop, I. T. (70)	Sample of Iowa State College freshmen (180 of 1516) from high schools grouped in 10 categories according to high school size from under 25 to 1000 and over. Considered survival attrition at end of 1st quarter, graduation attrition at end of 5 years, and quality point averages for same intervals.	No significant difference according to high school size.
1959	Altman, Esther R. (2)	127 seniors at Central Michigan University.	Graduates of large schools did not have grade point averages significantly higher than graduates of small schools.

Table 3 Continued - High School Achievement and Success

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1959	Feldt, L. S. (39)	Mean scores of high school seniors on Iowa Tests of Educational Development from 4-year high schools with following 9-12 enrollments: 1 - 100 or less 2 - 101 - 200 3 - 201 or more	In Iowa, seniors of small high schools achieve significantly below seniors of larger high schools although evidence that the gap may be closing. Research favored high schools of over 200.
1959	Hoyt, Donald P. (55)	884 freshmen entering Kansas State College in 1956 grouped by high school size from 25 or less to 251 or more. Factors considered - college entrance examination and Freshman GPA.	Found no significant differences between students from large and small schools on measure for potential for college work and first year college grades. Found high school rank as good a predictor of college grades for students from small as for those from large high schools.
1959	Ohio Education Association, Education Council Survey Committee (97)	College students who attended Ohio high schools, grouped by two sizes: under 250 and over 250 pupils.	Students from high schools under 250 were generally less prepared for college and made poorer college records when compared with students who had graduated from schools of over 250.
1958	Anderson, Kenneth E. Page, Tate C. Smith, Herbert A. (4)	1445 representative high school seniors in Kansas 1951-52 studied the academic achievement of high school seniors in upper ten percent of their classes.	Size of school not an important factor when exceptional pupils achievement measured by standardized tests.
1958	Dickenson, Elbert L. (33)	617 students who had withdrawn from the University of Arkansas.	Withdrawal rate greater among graduates of smaller schools; however, when data adjusted for mental ability size of school was of little consequence.
1958	Opstad, Paul E. (100)	Study of entering 9th grade classes of 1950, 1951, and 1952; 786 dropouts from 73 public high schools in Iowa.	No significant difference in school size per se related to a school's holding power.
1956	Bertrand, J. R. (8)	637 Texas A and M Agricultural students who ranked in the lower quartile on achievement and aptitude tests in high school.	Found negative relationship between high school size and college success.

Table 3 Continued - High School Achievement and Success

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1956	Brown William E. (12)	Interviews in 14 4-year high schools in southern California, enrollments ranged from 446 to 3814; opinion poll of principals and superintendents and professors of secondary education.	Number of course offerings in all curricular areas increased as enrollment increased - greatest choice in schools with 1500 - 1800 students - no substantial increase beyond that enrollment range.
1954	Bledsoe, J. C. (10)	Average marks in Georgia Colleges (Freshman GPA) of students from high schools grouped according to size of graduating class - 1 - fewer than 40 2 - 40 - 99 3 - over 100	Students from larger schools tend to make significantly higher average marks during first year of college than those from small and middle sized schools. Research supported high schools with over 100 pupils in graduating class.
1953	Hartung, Maurice (54)	Analysis of dropout rates in 22 Illinois high schools outside the Chicago area.	Found no statistically significant differences in large and small school dropout rates.
1952	Gaston, G. T. Anderson, K. E. (45)	Achievement and intelligence scores of 47 top (Number 1) Kansas high school students grouped according to high school size, 0-49, 50-99, 100-199, and over 200.	Groups did not differ significantly in Math, Science, English or general intelligence significant difference in social studies favored larger (200+) schools.

Table 4 - PER PUPIL COSTS AND EXPENDITURES AS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1970	Rosenberg, Neal E. (113)	Per pupil expenditures in 58 California secondary schools investigated for accreditation by the Western Association in 1966-67, enrollments ranging from 500 to 3500.	No recommendation but data seems to favor 2000 as optimum high school enrollment.
1970	Rosenberg, Neal E. (113)	Data on costs per pupil in a sample of California high schools [approximately 1(5)] investigated for accreditation by the Western Association of Schools and Colleges grouped in 8 categories according to enrollments from under 500 to 3500 - 1966-67.	As school population increases, teacher cost per pupil, administration cost per pupil, and total cost per pupil decreases quite rapidly at first, then more slowly to a minimum and finally gradually increases again. Data suggests economic feasibility of small high school of approximately 400-500 students.

Table 4 Continued - High School Per Pupil Costs

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1968	Tower, C. O. (117)	Studied breadth of program, costs and pupil travel time in relation to vocational programs.	As enrollments increase, number of different vocational programs increases, and capital outlay per pupil and operating costs decrease. H.S. Enr. / No. Dif. Prog. / Cap. Out. Per Pupil / Oper. Costs Per Pupil 408 / 15 / $3,994 / $519 1,004 / 22 / 2,858 / 480 2,779 / 41 / 2,363 / 467
1968	Whitt, Robert L. (136)	Study of research of business management of schools and personal knowledge.	Recommended 10-12 grade enrollment from 450 to 1800 plus for most efficient operation.
1967	Morphet, Edgar L. Ross, John G. Reller, Theodore L. (86)	Effects of school size variations on fluctuations in unit cost.	Suggested that in districts with fewer than 1200 students, high costs deferred provisions for needed educational opportunities. Beyond 50,000 level, costs tended to rise again as much as $10 per pupil in the very large districts. Appeared that cost factors dictate a minimum enrollment of 10,000 pupils in district with 40,000 to 50,000 the optimum enrollment for economic efficiency.
1967	Rajpal, P. L. (108)	459 public high schools in Iowa in 1964-65 divided up into 8 enrollment groups from less than 100 to more than 800 pupils.	Mean instructional expenditures per resident student in average daily attendance decreased consistently from $579 in district with 51 to 100, to $354 in districts with 801 to 6,000 high school students.
1966	Riew, John (110)	Per pupil expenditures and other factors in Wisconsin high schools.	Based on per pupil expenditure factor recommended 1600 pupil high school minimum.
1965	George Peabody College for Teachers (46)	Study of efficiency in operation, per pupil costs and other factors in Georgia schools and school systems.	Minimum of 100 pupils in grade 12 suggested.
1964	Hanson, Nels W. (51)	589 school districts in 10 states, ranging in size from 1500 to over 846,000 pupils with median of about 50,000. Considered total costs of 1-12 educational programs.	Unit costs declined consistently as district size rose to approximately 20,000 students.

Table 4 Continued - High School Per Pupil Costs

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1964	Morris, Harold J. (87)	3727 high schools in Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee and Virginia (1,757,747 students 75,188 teachers).	Highest costs per pupil in schools of under 200. Suggested that per pupil expenditure tended to level off when enrollments exceeded 600.
1961	Gray, Stuart C. (47)	40 Iowa public secondary schools grouped according to enrollments - Group A - 1000 and above B - 400 to 999 C - 150 to 399 D - 1 to 149	1000 suggested as the optimum secondary enrollment for fiscal efficiency.
1961	Morphet, Edgar L. Ross, John G. (85)	Survey of all California districts using state and federal figures and School Management's Cost of Education Index to determine size-cost relationships.	Found ideal size for senior high school to provide satisfactory program effectively and efficiently 600-800 pupils. H.S. DISTRICTS - CALIFORNIA Size (ADA) / No. Districts / Avg. Costs Under 100 — 9 — $992 100-199 — 23 — 712 200-399 — 29 — 556 400-599 — 28 — 598 600-999 — 33 — 514 1000-2999 — 60 — 501 3000 & over — 47 — 481 State Average 490
1960	Smith, Clifford B. (118)	Survey conducted for the Ohio State Dept. of Education Questionnaires completed by 352 Ohio High School Principals.	Financial advantages increased with social size up to the 800-1200 range little financial advantage past this range - Schools with fewer than 200 paying premium for what considered inferior educational programs.
1959	Kowitz, Gerald T. Sayres, William C. (67)	Per pupil expenditures in New York secondary schools.	Study suggested 688-756 pupils optimum size.
1953	Commission on Illinois School Problems (23)	Study of per pupil costs in 609 Illinois high schools.	Minimum of 300 high school pupils recommended.

Table 4 Continued - High School Per Pupil Costs

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1952	Peck, Roderick B. (104)	Iowa districts maintaining high schools - influence of enrollment and expenditures on educational quality.	Per pupil expenditures and costs inversely related - greatest cost increase occurred as enrollment dropped below 350.
1951	Woodham, William (138)	Florida high schools	Greatest increase in per pupil expenditures occurred as secondary enrollment fell below 350 students. Suggested minimum of 500 students in grades 7-12.
1948	McLure, William P. (77)	Per pupil costs and curricular offerings in Mississippi high schools.	Recommended minimum high school enrolling of 700; 1000 - 1200 may be necessary to provide all desired services. Maximum enrollment not critical factor.
1947	Grieder, Calvin (48)	Educational costs related to school size.	Peak economy attained in high schools of 500 students; in elementary schools with an enrollment of 400 children.
1940	Butterworth, Julian (13)	New York school districts.	Found inverse relationship between size and cost.
1938	Washington State Planning Council (133)	Per pupil expenditures in Washington state high schools.	Results favor schools with minimum of 150 pupils and limit of 1500.
1931	Nanninga, S. P. (88)	Per pupil expenditures as related to course offerings and high school enrollments California high schools.	Recommended high school enrollment 500 - 1000 pupils.
1972	Fonstad, Clifton (43)	Survey of net operating costs per pupil (K-12) in all Wisconsin school districts grouped according to high school (9-12) enrollments.	Surveys have consistently shown highest net operating costs in smallest districts which offer the least in terms of programs and services. Costs decline sharply as district size increases then levels off and start increasing again in larger districts.

1971-72 WISCONSIN DISTRICTS

Size (9-12 ADM)	No. Dist.	Avg. Net Oper. Costs Per K-12 Pupil
Under 100	6	$983
100-199	54	876
200-299	72	830
300-399	51	801
400-499	35	804
500-749	64	796
750-999	34	831
1000-1499	32	844
1500 & over	34	834
State average	(382)	832

Table 5 - CURRICULAR OFFERINGS AS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1972	Fonstad, Clifton (43)	All Wisconsin school districts operating high schools, an annual survey.	Surveys consistently show a direct relationship between high school size (9-12 enrollment) and the number of course offerings. This relationship in 1971-72 was as follows:

High School 9-12 Enrollment	Number of Course Offerings Gen.	Voc.	Total
Under 100	19	11	30
100-199	26	17	43
200-299	28	19	47
300-399	31	22	53
400-499	34	23	57
500-749	38	26	64
750-999	44	29	73
1000-1499	47	30	77
1500 & over	64	37	101
State avg.	36	24	60

1971	Kreitlow, Burton W. (68)	20-year longitudinal study starting in 1949 of the effects of school reorganization on students and communities in Wisconsin.	Reorganized school districts provided more learning opportunities.
1970	Turner, Claude C. Thrasher, James M. (129)	Personal experiences and review of literature on curricular development as related to school size.	Recommend 500-1500 pupils in high school.
1968	Maxey, James E. Thomas, Donald R. (74)	Survey of curricular and lethnological innovations for North Central Association accredited high schools in Iowa, Missouri, Nebraska and South Dakota; high school curriculum data on Iowa high schools grouped by size.	As district enrollment increases, number of course offerings increases - largest increases noted in vocational education and foreign languages - also true in junior highs.
1967	Rajpal, P. L. (108)	459 public high schools in Iowa 1964-65 divided into 8 enrollment groups ranging from less than 100 to over 800 pupils.	The state's (Iowa) largest high schools had more curricular offerings than schools in any other size category.
1965	Miller, Van (80)	Review of literature	Many authorities suggest that in most cases high school enrollments of 700 to 1500 or larger needed to meet curricular needs.
1964	Morris, Harold J. (87)	3727 high schools in nine southern states enrolling 1,757,747 students and employing 75,188 teachers.	Direct and positive relationship between curriculum variety and level of enrollment.

Table 5 Continued - High School Curricular Offerings

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1962	Mays, S. S. (75)	Student records of 8 high schools in San Mateo County California with enrollments ranging from 629 to 2777.	1500 to 2000 pupils recommended; 2000 optimum. Concluded that schools with enrollments of less than 1000 did not provide programs that were broad enough to meed need of all pupils.
1961	Gray, Stuart C. (47)	40 Iowa public secondary schools grouped according to enrollments. Group A - 1000 and above B - 400 to 999 C - 150 to 399 D - 1 to 149	Found a positive relationship between size of school and breadth of educational offerings.
1961	Weaver, Charles H. (134)	117 North Carolina High schools ranging from under 100 to over 1750 pupils.	Concluded that larger high schools offer more varied program of studies. Small high schools schedule more courses on an alternate year basis.
1957	Woods, Thomas E. (139)	Administered questionnaire to samples of parents, administrators, teachers and students of 17 4-year high schools in the Bay Area of California with enrollments of 800 to over 2000 students.	1200 to 1599 enrollment schools best able to communicate to parents the nature of curricular offerings found no consistent relationship between enrollment size and number of course offerings.
1956	Brown, William E. (12)	Interviews in 14 4-year southern California high schools with enrollments ranging from 446 to 3814; opinion poll of principals, superintendents and secondary education professors.	Number of course offerings in all curricular areas increased as enrollments increased - greater choice in schools with 1500-1800 students. No substantial increase beyond that enrollment range.
1951	Woodham, William J. (138)	Florida High schools	Course offerings increase as high school enrollments increase increase most rapid up to approximately 450 pupils.
1949	Engelhardt, N.L. Engelhardt, N.L. Jr Leggett, Stanton (36)	Study of curriculum offerings in high schools of various sizes.	Recommended high school of 1200-3000 pupils.
1933	Ferriss, Emery N. (40)	Reviewed literature.	Recommended minimum of 250-400 pupils in 6-year high school.

Table 6 - STAFF QUALIFICATIONS AS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1968	Maxey, James E. Thomas, Donald R. (74)	Teachers in Iowa school districts grouped by K-12 enrollments: 0-499, 500-749, 750-999, 1000-1499, 1500-1999, 2000-2999 and 3,000 and above.	Recommended district should have minimum total (K-12) enrollment of 1500 to secure maximum benefit of teacher preparation. Smaller the school, greater chance teacher will teach in 2 or more subject areas and have greater number of subject preparations. Larger schools attract better prepared, more experienced teachers, pay higher salaries and meet more pupils per day.
1967	Rajpal, P. L. (108)	All (459) public high schools in Iowa in 1964-65 divided into 8 enrollment groups from less than 100 to more than 800 pupils.	Largest high schools had more experienced, better prepared staffs.
1965	Schloerke, Wallace (115)	Survey of over 2000 teachers in 33 Michigan secondary schools with enrollments of from 500 to over 3000.	1500-1999 pupil schools had teaching staffs with the greatest academic preparation; more teachers in 2000 to 2499 pupil schools devoted full time to major field of preparation.
1964	Morris, Harold J. (87)	3727 high schools in nine southern states enrolling 1,757,747 students and employing 75,188 teachers.	Higher the enrollment the greater the percent of teachers with masters degrees and the lower the percent of non-degree teachers.
1964	Patterson, Harold (103)	Staff qualifications (experience, training, certification, salaries) of 13,707 professional personnel (including librarians and counselors) in schools in 9 southern states 1962-63.	Direct relationship between percent of experienced teachers, teachers with standard certificates and with degrees from out of state colleges and universities. College training of teachers, salary levels also directly related to school size. Included larger schools provided superior personnel.
1961	Gray, Stuart C. (47)	40 Iowa public secondary schools grouped in four categories to enrollments from over 1000 to under 150.	Smaller schools tended to have greater turnover of teachers and fewer teaching in major fields of preparation.

Table 6 Continued - High School Staff Qualifications

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1961	Collingsworth, B. Jack (22)	Data on sample of 364 teachers in 111 predominately white Arkansas high schools (grades 7-12) ranging in size from 150 to over 800 pupils.	As school size increased, academic training of teaching staff - recommended minimum of 400 students.
1961	Weaver, Charles H. (134)	117 North Carolina high schools ranging in size from under 100 to over 750 pupils and 100 college freshmen in 1956 chosen on basis of size of high school.	College preparation increased as size of high school increased. Study favored 500 students as a minimum.
1960	DeGood, K. C. (31)	Ohio high schools with (a) 500 to 700 pupil enrollments and (b) 200 pupils or less.	Teachers in smaller schools had less experience, were less likely to hold advanced degrees and received lower salaries.

Table 7 - EXTRA-CURRICULAR STUDENT PROGRAMS AS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1971	Kreitlow, Burton W. (68)	20-year longitudinal study starting in 1949 of the effects of school district reorganization on students and communities in Wisconsin.	Personal and social adjustment of boys better in non-reorganized districts.
1967	Morgan, Don L. (84)	Iowa high schools - relationship between distance from home to school upon participation in extracurricular activities.	Found definite and consistent relationship between participation in school activities and distance from home to school.
1964	Kleinert, Edwin J. (65)	Examined student participation in activities in 63 Michigan high schools in upper three grades from 87 to 3063 grouped as follows: a - under 600 enrollments b - 600 to 1499 enrollments c - 1500 or more enrollments	Found student participation declined as size increased in groups a and b, less rapidly in Group c. Data supports high schools of no more than 1500 pupils.
1962	Barker, Robert G. and others (6)	Examined records of athletic competition in 218 eastern Kansas 4-year high schools with enrollments of 18 to 2287; senior activities as recorded in yearbooks from 36 high schools ranging from 34 to 2287 junior classes in four small (83-151) and one large (2287) high schools.	Students in small schools participate more in extracurricular activities; found juniors from small schools derived greater satisfaction from participation in non-class activities than those from large schools.

Table 7 Continued - High School Extra-curricular Programs

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1961	Gray, Stuart C. (47)	40 Iowa public secondary schools grouped according to enrollments: a - 1000 and above b - 400 to 999 c - 150 to 399 d - 1 to 149	Pupil activity greatest in and extracurricular programs rated highest by students in high schools with 150 to 399 students.
1958	Kent, Walter K. (63)	Indiana high schools	High school activities programs evaluated by criteria set by the North Central Association improved and rated significantly higher in districts after reorganization.
1958	Opstad, Paul E. (100)	Study of entering 9th grade classes of 1950, 1951 and 1952 and 786 dropouts from 73 public high schools in Iowa.	Found no relationship between size and extent of pupil participation in extracurricular activities.
1957	Woods, Thomas E. (139)	Four questionnaires administered to random sampling of parents, students, teachers and administrators in 17 4-year high schools with enrollments from 800 to over 2000 in the Bay Area of California.	Most favorable parent reaction to extracurricular program offering in 1200 to 1599 pupil high schools.
1956	Brown, William E. (12)	Interviews in 14 4-year southern California high schools with enrollments ranging from 446 to 3814; opinion polls of principal, superintendent and secondary education programs.	Negative correlation between enrollment size and student participation in extracurricular or co-curricular activities.

Table 8 - MISCELLANEOUS FACTORS RELATED TO HIGH SCHOOL SIZE

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1969	Turner, Harold E. (130)	Various factors related to curriculum development including size of attendance centers, staff and personnel services, finance, research.	Concluded that it would be very difficult if not impossible for a small district to mount an outstanding curriculum. In most cases the costs would be prohibitive.

Table 8 Continued - High Schools - Miscellaneous Factors

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1968	Maxey, James E. Thomas, Donald R. (74)	Statewide data on Iowa high schools; survey of North Central Association accredited schools in Iowa, Missouri, Nebraska and South Dakota. Factors surveyed curricular and technological innovations.	Schools with innovating programs tend to have high schools of at least 200 - technical innovations more likely to be found in districts enrolling over 500 in high school.
1968	McCowan, Richard J. McCowan, Robert P. (76)	23 studies on relationship of school size to various criteria of educational effectiveness made between 1956 and 1968.	Important advantages appear to accrue with increases in school size up to 1,500 to 2,000 - Beyond this leveling off noted.
1967	Morphet, Edgar Johns, Roe L. Reller, Theodore L. (86)	Review of literature.	400 - 1500 pupils in grades 10-12 recommended.
1966	Jackson, Joe L. (60)	4773 public high schools in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia ranging in size from 13 to 4,169 pupils. Factors considered included teacher preparation, certification, experience, curricular offerings, teacher load.	Recommended high school size: Jackson - Grades 7-12: 950-1300 pupils; 8-12: 810-1150 pupils; 9-12: 890-1250 pupils; 10-12: 700-950 pupils
1965	George Peabody College for Teachers Division of Surveys and Field Services (46)	Georgia schools and school systems. Factors considered included operational efficiency, teacher qualifications, teacher utilization, special services, curriculum offerings, pupil achievement, counseling and library services, percent of graduates entering college.	Recommended minimum of 100 pupils in grade 12; 3 times as many units offered as are required for graduation.
1965	Wisconsin Department of Public Instruction (127)	Factors needed to provide a comprehensive program.	Minimum of 500-600 high school pupils. May be necessary to operate smaller centers in sparsely populated areas in which case, every effort should be made to provide broadest, highest quality program under the circumstances.

Table 8 Continued - High Schools - Miscellaneous Factors

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1965	Monahan, William W. (83)	Survey of teachers' knowledge of pupils in 15 Los Angeles high schools grouped on basis of enrollment as follows: a - mean enrollment - 1,604 b - mean enrollment - 2,074 c - mean enrollment - 2,887	Maximum 2000 high school enrollment recommended. As enrollment increased, found less communication between teachers about students; communication between teacher and parent not affected greatly by enrollment.
1964	Patterson, Harold (103)	Staff qualifications of 13,707 professional personnel in schools in 9 southern states, 1962-63.	Professional qualifications of special services; personnel increased with school size.
1963	Trump, J. Lloyd (128)	Size of high school best for organization for large group and individualized instruction.	1200 - 2000 pupils or multiples thereof in high school recommended.
1962	Mays, S. S. (75)	Provisions for and utilization of facilities such as libraries gyms, cafeterias, swimming pools, heating plants, office space, etc.	Number of high school students in single attendance center should not exceed 2000.
1961	Gray, Stuart C. (47)	40 Iowa public secondary schools grouped in four categories according to enrollments from over 1000 to less than 150.	Secondary schools enrolling 400 to 999 students ranked highest in terms of employment of counselors and counseling time available to students. Schools with over 1000 ranked highest in employment of qualified librarians and number of library hours available to students.
1960	DeGood, K. C. (31)	Ohio high schools with 500 to 700 and 200 or less enrollments.	Guidance programs in Ohio's smaller high schools were weaker than those in larger high schools.
1960	Smith, Clifford B. (118)	1959-60 Ohio Department of Education principals' annual reports (high schools) questionnaires to 404 Ohio high school principals. Factors studied included educational opportunities, pupil factors, staff qualifications, special services.	Optimum size high school suggested from 800 to 1200 pupils.
1959	Menozzi, John (79)	Survey of attitudes and opinions of pupils, teachers, administrators of 12 randomly selected North Central Association member high schools.	Schools with enrollments of 750 to 1437 appear to provide more guidance services to students than larger schools.

Table 8 Continued - High Schools - Miscellaneous Factors

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1959	San Antonio School District (114)	Study of high school space utilization.	High school should be constructed for 2400 students to achieve optimum use of space.
1958	Shapiro, David F. (116)	Four questionnaires administered to random sample of parents, teachers, students and administrators in 17 4-year high schools in Bay Area, California ranging from 800 to over 2000 pupils.	1200 - 1600 pupil high schools had most effective staff supervision; found greater staff cooperation in smaller schools.
1957	Cornell, Francis G. (27)	Space utilization, space budgets per pupil, allocations of space.	Suggests 1500 students as optimal for single high school; not much gained beyond this enrollment.
1957	Tyson, James C. (131)	Pupil-teacher relations examined in 28 white high schools in Virginia ranging from under 50 to over 1400 pupils. Surveyed 1255 students and 135 teachers.	Pupils in schools with enrollments under 490 confided more frequently with their teachers; generally more pupil-teacher interaction in smaller schools. Study favored schools of 293-490 pupils.
1956	Livingston, A. Hugh (72)	Review of literature on needs of particular communities.	Optimum of 2000 pupils suggested.
1954	Nation's Schools (94)	Superintendents' opinion poll.	37% respondents favor high school enrollment 150-400; 31%, 400-750; 24%, 750-1200.
1953	Edmonson, J. B. Roemer, Joseph Bacon, Francis L. (35)	Observation, study and analysis of a number of schools.	Minimum of 1500 and maximum of 2000 pupils.
1949	National Education Association, Research Division (93)	Survey of 1127 respondents in school systems in cities of 2500 or more population.	Median recommendation of 677 pupils in high school.
1949	Oliver, A. I. (98)	Opinions of a group of education experts including superintendents and principals familiar with small schools.	500 to 700 pupils seemed most desirable.
1948	National Commission on School District Reorganization (90)	Various factors considered by commission in review of literature and state studies.	Recommended minimum of 300 9-12 pupils (75 in each age group) and 12 full-time teachers.

Table 8 Continued - High Schools - Miscellaneous Factors

YEAR	RESEARCHER(S) OR INFORMATION SOURCE	UNIVERSE OR FACTORS CONSIDERED	FINDINGS AND/OR RECOMMENDATIONS
1938	New York State Regents Inquiry (122)	Survey of New York state high schools.	Recommended a minimum of 300 high school students.
1934	Dawson, Howard A. (30)	Various factors studied in review of literature and summary of expert opinion.	Recommended minimum of 210 pupils in 7-12 6-year high school; 175 minimum in 4-year high school.

Table 9 - RECOMMENDED PUPIL/STAFF RATIOS FOR CERTAIN SPECIAL EDUCATIONAL SERVICES*

SERVICE AREA	RATIO OF PROFESSIONAL PERSONNEL TO STUDENTS - RECOMMENDATIONS	
	American Association of School Administrators (1958)	Ohio School District Reorganization Study (1966)
Art	-	1:500
Art Consultant	1:2,500 to 3,000	-
Child Accounting	1:10,000	-
Educational Materials Consultant	1:5,000 to 12,000	-
Guidance Counselor		
High School	1:300 to 400	1:250 optimum 1:400 maximum
Elementary School	1:600	1:450 optimum
Health Services	1:2,500	1:2,500
Instrumental Music	-	1:500
Language Arts Consultant	1:10,000 to 12,000	-
Librarian	-	One in every school
Music Consultant	1:2,500 to 5,000	-
Partially Sighted	1:500	-
Physical Education	-	1:500
Physical Education Consultant	1:2,500 to 5,000	-
Physically Handicapped	1:250	-
Psychologists	1:2,500	1:2,500
Speech and Hearing Therapy	1:2,000 to 2,500	1:3,000
Visiting Teacher (Home-bound Youth)	1:1,250	1:2,000 to 3,000

* Inman, William E., "Size and District Organization," in "Planning for School District Organization, Selected Position Papers," Lincoln, Nebraska: The Great Plains School District Organization Project, 1968, p. 174.

Table 10

SUMMARY OF RESEARCH FINDINGS AND LITERATURE REVIEWED CONCERNING SCHOOL SIZE AND FACTORS RELATED TO EFFECTIVENESS[a] (See Tables 1 through 8)

Factors Considered and Tables Summarized	RESEARCH FINDINGS AND LITERATURE REVIEWED THAT SUGGESTS: Small Schools Can Be Effective[b]		Schools With Adequate Enrollments Most Effective		School Size Is Not Important		Total Reports Reviewed
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	
Table 1 - Elementary School Size	1	5.0%	17	85.0%	2	10.0%	20
Table 2 - Junior High School Size	1	10.0	8	80.0	1	10.0	10
Table 3 - College Success and High School Size	5	19.2	11	42.3	10	38.5	26
Table 4 - Per Pupil Costs and High School Size	3	13.0	20	87.0	--	--	23
Table 5 - Curricular Offerings and High School Size	1	6.7	14	93.3	--	--	15
Table 6 - Staff Qualifications and High School Size	—	--	9	100.0	--	--	9
Table 7 - Extracurricular Programs and High School Size	5	62.5	2	25.0	1	12.5	8
Table 8 - Miscellaneous Factors and High School Size	4	15.4	22	84.6	--	—	26
Total Reports Reviewed	20	14.6%	103	75.2%	14	10.2%	137

[a] Some reports included in the tables summarized have not been included as findings or recommendations were not definite.

[b] "Small" schools are considered here as elementary and junior high or middle schools with under 300 pupils and high schools with under 500 9-12 pupils or 100 in grade 12. Schools are considered adequate with enrollment in excess of these minimums. High schools in reorganized districts have also been considered as adequate.

Table 10 continued:

SOME OBSERVATIONS ON FINDINGS CONCERNING SCHOOL SIZE . . .

Following are some observations based on Table 10, which summarizes findings of the research and literature reviewed in Tables 1 through 8. These studies relate enrollments and other school factors to school effectiveness.

1. Of the reports reviewed relating to elementary and junior high or middle schools, over 80 percent say that such attendance centers should have at least 300 pupils to function effectively. Less than 10 percent suggest that smaller schools can operate effectively.

2. Over 70 percent of the reports relating to high school size and effectiveness recommend high schools with enrollments of at least 500 in grades 9-12.

3. There is a very strong and positive correlation between high school size and the breadth of curricular offerings according to over 90 percent of the studies reviewed. Only about 1 study in 15 relating breadth of curricular offerings to enrollments suggests that small schools can offer programs as comprehensive as those available in larger schools.

4. About as many studies conclude that high school size is not important in determining success in college (42.3%) as suggest that graduates of schools of 500 or over are more likely to succeed (38.5%). About one study in five suggests that graduates of small high schools have as good or better chance to succeed in college as those from larger high schools.

5. Almost 9 out of 10 of the studies relating to per pupil costs and high school size found that schools with adequate enrollments can be expected to operate more efficiently. All studies found that costs are related to enrollments although some reports suggest that small districts can function efficiently too.

6. All of the studies relating staff preparation and qualification to high school size report better qualified teachers are more apt to be found in the larger high schools.

7. Almost two-thirds (62.5%) of the studies relating high school size and extra curricular programs found student participation is greatest in small schools.

8. Eighty-five percent of the studies that looked at a variety of school district factors and related them to high school size and effectiveness favor high schools enrolling at least 500 students. Only a little over one such study in six suggests that smaller schools can function effectively.

9. When recommended pupil/staff ratios are considered for effective and efficient utilization of special services personnel (see Table 9) it is obvious that small districts cannot justify provision of some such personnel except on a part-time or shared time basis. This makes it more difficult for small districts to provide some important pupil services.

Table 11

What research says about
EDUCATIONAL ADMINISTRATIVE UNIT SIZE

YEAR	RESEARCHER(S) OR SOURCE	RECOMMENDED ADMINISTRATIVE UNIT SIZE		
		MINIMUM SIZE	OPTIMUM SIZE	MAXIMUM SIZE
1969	Committee to Study the Next Steps of Reorganization and Consolidation in the School Districts of New Jersey (96)	3,500 pupils	-	-
1969	National Academy of Education (89)	5,000 pupils	-	150,000 pupils
1969	Knezevich, Stephen J. (66)	10,000 - 12,000 pupils, 2400 if part of an intermediate district	-	-
1969	Turner, Harold E. (130)	10,000 - 20,000 pupils	-	-
1968	Hanson, Ellis G. Purdy, Ralph D. (50)	3,000 - 5,000 for select programs and services	over 20,000	-
1968	Idaho Superintendents Association (59)	1,600 pupils	10,000 - 15,000 pupils	25,000 - 30,000 pupils
1968	Whitt, Robert L. (136)	1,500 - 2,000 pupils	10,000 - 30,000 pupils	50,000 pupils
1967	Lane, Willard R. Corwin, Ronald G. Monahan, William G. (69)	10,000 pupils	-	-
1966	Faber, Charles F. (38)	10,000 pupils	10,000 - 20,000 pupils	-
1966	McLure, William P. Chairman Illinois Task Force on Education (78)	-	25,000 - 30,000 pupils	-
1966	Project Staff Report, Ohio Master Plan (105)	3,500 pupils (with 70 or more units of credit)	Over 10,000 although administrative costs will be higher with less than 20,000.	-

YEAR	RESEARCHER(S) OR SOURCE	RECOMMENDED ADMINISTRATIVE UNIT SIZE		
		MINIMUM SIZE	OPTIMUM SIZE	MAXIMUM SIZE
1966	Recommendations from Project Reports-Ohio School District Organization Master Plan			
	Ohio Assoc. of School Admin.	3,500	-	-
	Ohio Assoc. of Supervision and Curriculum Development	2,500	20,000	50,000
	Ohio Dept. of Elementary School Principals	20,000	-	50,000
	Ohio Assoc. of Secondary School Principals	5,000	-	-
	Committee on Economic Development (105)	-	25,000	-
1965	Benson, Charles S. (7)	250,000 population with public school enrollment of about 50,000 except in areas of extreme sparsity of population	If district is to provide junior college - population of about 500,000	-
1965	Campbell, Roald F. Cunningham, Luvern E. McPhee, Roderick F. (16)	2,000 pupils	10,000 pupils	40,000 pupils
1965	George Peabody College for Teachers (McClurkin) (46)	10,000 pupils	15,000 - 20,000 pupils	-
1965	Master Plan for School District Organization in Ohio (105)	Same programs and services		
		3,500	10,000	-
		Comprehensive programs and services		
		15,00	25,000 - 35,000	-
1963	California Commission on School District Organization (15)	10,000 pupils	-	-
1963	Packard, J. C. (102)	4,000 pupils	10,000 pupils	25,000 pupils
1962	St. Louis County, Missouri Study (106)	2,000 pupils	-	-
1962	Ohio Education Assoc. Study Flescher report (105)	5,000 pupils	-	-

Table 11 Continued - Administrative Unit Size

YEAR	RESEARCHER(S) OR SOURCE	RECOMMENDED ADMINISTRATIVE UNIT SIZE		
		MINIMUM SIZE	OPTIMUM SIZE	MAXIMUM SIZE
1961	Grieder, Calvin Pierce, Truman M. Jordan, K. Forbes (49)	2,000 to 3,000 pupils in ADA	-	-
1961	Institute of Administrative Research, Teachers College Columbia University	(106) -	20,000 - 50,000 pupils	-
1960	Blanke, Virgil E. (9)	-	-	10,000 - 15,000 pupils
1959	Committee for Economic Development (24)	-	25,000 pupils	-
1958	Fitzwater, Charles O. (41)	5,000 pupils	-	-
1956	White House Conference on Education (25)	40 teachers and 1200 pupils	-	10,000 pupils
1956	Beem, Harlan (106)	-	11,000 pupils	-
1956	Eyman, Reina M. (Ohio County Superintendents Association) (105)	2,500 pupils	10,000 pupils	-
1950	Johns, Roe L. Morphet, Edgar L. (62)	10,000 pupils	-	-
1948	National Commission on School District Organization (91)	10,000 - 12,000 pupils	-	-
1948	Carpenter, C. C. (17)	1,250 pupils	-	-
1939	Alves, Henry F. Anderson, Archibald W. Fowlkes, John Guy (3)	425 to 635 - 6-6 plan 675 to 1020 - 8-4 plan 965 to 1465 - 6-3-3 plan	-	-
1936	Cook, Katherine M., ed. (26)	46 teachers absolute minimum	10,000 - 12,000 pupils	-

Table 11 Continued - Administrative Unit Size

YEAR	RESEARCHER(S) OR SOURCE	RECOMMENDED ADMINISTRATIVE UNIT SIZE		
		MINIMUM SIZE	OPTIMUM SIZE	MAXIMUM SIZE
1935	Briscoe, Alonzo O. (11)	40 teachers absolute minimum	200 - 250 teachers	-
1934	Dawson, Howard A. (30)	1,600 pupils and 46 teaching units absolute minimum	9,800 - 12,000 pupils and 280 teaching units	-

Table 12

SUMMARY OF RECOMMENDATIONS ON ADMINISTRATIVE UNIT SIZE (ENROLLMENTS) FROM RESEARCH AND LITERATURE REVIEWED (See Table 10)

Administrative Unit Size - Total K-12 Enrollment	RECOMMENDED ADMINISTRATIVE UNIT SIZE					
	Minimum Size		Optimum Size		Maximum Size	
	Number	Percent	Number	Percent	Number	Percent
Under 2,000	10	27.8%	--	--	--	--
2,000 to 4,999	11	30.5	--	--	--	--
5,000 to 9,999	4	11.1	2	9.5%	--	--
10,000 to 19,999	9	25.0	11	52.3	2	22.2%
20,000 to 49,999	1	2.8	7	33.3	3	33.3
50,000 to 99,999	1	2.8	--	--	3	33.3
100,000 and Over	--	--	1	4.8	1	11.1
Total Recommendations	36	100.0%	21	99.9%	9	99.9%

How big should a school district be? Over 90 percent of the research reports and literature reviewed and summarized above suggests that the optimum size for greatest effectiveness and efficiency is districts with at least 10,000 elementary and secondary school pupils. Over 70 percent of the reports reviewed which suggested a minimum district size say a district should not have fewer than 2,000 to 5,000 pupils.

Of the thirty reports reviewed which were published after 1956, only two recommended minimum districts of under 2,000 K-12 pupils[1], while four reports included no suggested minimums. In Wisconsin, the minimum size suggested is districts with at least 500 in the high school grades (9-12). This would mean a minimum of about 1,600 K-12 pupils. To be capable of providing comprehensive vocational and enrichment as well as academic programs, high schools with at least 750 to 1,000 students are considered more desirable. This would mean total K-12 district enrollments of approximately 2,400 to 3,200.

In 1972-73, 215 or over 56 percent of the state's 382 districts operating high schools had fewer than this suggested minimum number of high school students. Wisconsin school district sizes (1972-73) are shown below.

SIZE OF WISCONSIN SCHOOL DISTRICTS OPERATING HIGH SCHOOLS

Total K-12 Enrollments	Number of Districts	Percent of Total
10,000 and Over	13	3.4%
5,000 to 9,999	18	4.7
2,000 to 4,999	80	20.9
Under 2,000	271	70.9
Totals	382	99.9%

[1]Idaho Superintendents Association (1958) - 1,600 minimum; Robert L. Witt (1958) - 1,500 to 2,000 minimum.

A Summary of State Enrollment Guidelines for EFFECTIVE ADMINISTRATIVE UNITS, HIGH SCHOOLS AND ELEMENTARY ATTENDANCE CENTERS

Table 11

STATE OR SOURCE	RECOMMENDED OR SUGGESTED ENROLLMENTS[a]		
	ADMINISTRATIVE UNITS	HIGH SCHOOLS	ELEMENTARY ATTENDANCE CENTERS
California	2,000 pupil minimum 10,000 pupils recommended		One teacher per grade minimum
Colorado			One teacher per grade minimum
Connecticut	5,000 pupils ADM minimum	500 9-12 pupils minimum (750 in grades 7-12 minimum)	175 K-6 pupils minimum
Florida		100 pupils per grade minimum 1,500 - 1,800 pupils maximum	180 pupils absolute minimum
Georgia (46)	10,000 pupils minimum 15,000 - 20,000 pupils recommended	500 pupils minimum recommended 800 to 1,200 where feasible	One teacher per grade minimum; minimum 175 pupils; 500-700 pupils desirable where possible Junior highs - 500 to 1,200; 300 minimum
Idaho	10,000 - 15,000 pupils optimum, 3,000 minimum recommended. In sparsely populated areas, not less than 1,600 pupils; 30,000 pupils maximum.	800 - 1,200 pupils in grades 10-12 recommended if 90% within maximum travel time of 1 1/4 hours - 100 pupils per grade minimum.	One teacher per grade minimum - K-6 minimum enrollment 175 pupils, optimum 300-500 pupils, maximum 720 pupils - prefer 2-3 teachers minimum at higher grade levels
Illinois (57)		500 pupils minimum	300 pupils minimum
Indiana	1,000 pupils minimum		One teacher per grade minimum
Iowa (50)	3,500 pupils desirable minimum where time/distance factors permit; should be organized around centers with corporate populations of 2,500 - 5,000.	1,500 secondary (7-12) pupils desirable	One teacher per grade minimum; 350-700 elementary pupils desirable.

STATE OR SOURCE	RECOMMENDED OR SUGGESTED ENROLLMENTS[a]		
	ADMINISTRATIVE UNITS	HIGH SCHOOLS	ELEMENTARY ATTENDANCE CENTERS
Kansas	1,200 pupils minimum		
Kentucky		100 pupils in graduating class and minimum 4-year senior high enrollment of 600 recommended	8 teachers per elementary school minimum: 3 sections per grade in Junior H. S.
Michigan	2,000 pupils minimum		
Minnesota	3,000 pupil minimum	700 pupil minimum; 900 in 6-year secondary school; 80 minimum courses, 145 course offerings desirable	One teacher per grade minimum
Mississippi		700 pupils, 1,000 - 1,200 is better; 250 minimum	One teacher per grade minimum
Missouri (82)	1,200 pupil minimum; in all urban and suburban areas, 5,000 minimum; 10,000 to 30,000 more desirable	Sufficient enrollment to provide 50 units of approved credit in grades 9-12 with broad distribution by subject area including voc.-tech. fields	One teacher per grade minimum
Nebraska	500 pupils or 400 square mile minimum		
New Hampshire		500 pupils	One teacher per grade minimum
New Jersey		700 pupils minimum in 4-year high school, 800 in 6-year secondary school	
New York (123)	Not less than 5,000 pupils except in sparsely populated areas	500 7-12 pupils minimum, minimum 500 in 9-12 or 700 in 7-12 more desirable	20-30 pupils per grade 140 to 210 per K-6 school optimum of 420-630 in K-6 should be sought
Ohio (109)	3,500 pupils minimum; 20,000-35,000 pupils optimum	1,300 - 1,500 pupils optimum	300 elementary pupils minimum, 500 optimum, 750 maximum

Table 11 Continued - State Enrollment Guidelines

STATE OR SOURCE	RECOMMENDED OR SUGGESTED ENROLLMENTS[a]		
	ADMINISTRATIVE	HIGH SCHOOLS	ELEMENTARY ATTENDANCE CENTERS
Pennsylvania	4,000 pupils minimum mandated optimum 6,000-60,000 pupils		One teacher per grade minimum
South Carolina (121)		250 pupil minimum	
Vermont	2,000 pupils minimum, 6,000 desirable minimum in sparsely populated areas	600 to 2,000 pupils	
Virginia			600 pupils suggested optimum (Recognized that schools of 900 or more may be administered more economically & efficiently
Washington	1,000 ADM minimum	Recommended 500 pupil minimum	75 pupils per grade
West Virginia (135)		100 pupils in graduating class	175 pupils in grades K-6, 225 in grades K-8, 125 per grade in junior high
Wisconsin (137)		500-600 pupils considered necessary to provide comprehensive program - 750-1,000 considered more desirable minimum	One teacher per grade minimum 300-350 pupils in K-6 recommended
Oklahoma (99) Oregon (101) South Dakota (19) Wyoming (140)	These states have prepared statements and materials on school district organization and standards for schools but have not expressed minimum and/or optimum standards in terms of enrollments. In general these statements recommend that districts and attendance centers should be organized to include sufficient pupils to assure efficiency of operation while providing desired educational programs and services.		
National Commission on School District Reorganization	10,000 minimum	300-450 pupil minimum	175 and 7 teachers minimum in grades K-6, 300 pupils and 12 teachers optimum.

Table 11 Continued - State Enrollment Guidelines

STATE OR SOURCE	RECOMMENDED OR SUGGESTED ENROLLMENTS[a]		
	ADMINISTRATIVE UNITS	HIGH SCHOOLS	ELEMENTARY ATTENDANCE CENTERS
White House Conference on Education (25)		700-1,000 pupils optimum	225-250 pupils minimum, 300 and 12 teachers optimum

a - A number of the recommendations summarized in this table were taken from Inman, William E., "Size and District Organization," Chapter 9 in the Great Plains School District reorganization Project report, "Planning for School District Organization - Selected Position Papers," Lincoln, Nebraska, 1968 (58). Other recommendations are from sources noted which can be found in the bibliography.

Bibliography

WHAT RESEARCH SAYS ABOUT
SCHOOLS AND SCHOOL DISTRICTS
...factors related to effectiveness

1. Adams, Raymond S.; Richard M. Kimble and Marjorie Marlin. "School Size, Organizational Structure and Teaching Practices." Educational Administration Quarterly 6: Autumn 1970. p. 15-31.

2. Altman, Esther Royal. "The Effect of Rank in Class and Size of High School on the Academic Achievement of Central Michigan College Senior Class of 1957." Journal of Educational Research 52: April 1959. p. 307-309.

3. Alves, Henry F.; Archibald W. Anderson and John Guy Fowlkes. "Local School Unit Organization in Ten States." U.S. Department of the Interior, Office of Education Bulletin 1938, No. 10. Washington, D.C.: Government Printing Office, 1939. p. 296-97.

4. Anderson, Kenneth E.; Tate C. Page and Herbert A. Smith. "A Study of the Variability of Exceptional High School Seniors in Science and Other Academic Areas." Science Education 42: February 1958. p. 42-59.

5. Baird, Leonard L. "Big School, Small School: A Critical Examination of the Hypothesis." Journal of Educational Psychology 60: August 1969. p. 253-60.

6. Barker, Robert C., and others. "Big School--Small School: Studies of the Effects of High School Size Upon the Behavior and Experiences of Students." U.S. Office of Education, Cooperative Research Project No. 594. Lawrence, Kans.: Midwest Psychological Field Station, University of Kansas, 1962. 286p.

7. Benson, Charles S. "The Cheerful Prospect." Boston: Houghton Mifflin, 1965. 134p.

8. Betrand, J. R. "Relationship Between Enrollment of High Schools from Which Students Graduated and Academic Achievement of Agricultural Students: A and M College of Texas." Journal of Experimental Education 25: September 1956. p. 59-69.

9. Blanke, Virgil E. "Reorganization: A Continuing Problem." Administrator's Notebook 9: October 1960. 4p.

10. Bledsoe, Joseph C. "An Analysis of the Relationship of Size of High School to Marks Received by Graduates in First Year of College." Journal of Educational Sociology 27: May 1954. p. 414-18.

11. Briscoe, Alonzo O. "The Size of the Local Unit for Administration of Public Schools." Contributions to Education Series, No. 649. New York: Teachers College, Columbia University, 1935. 110p.

12. Brown, William Earl. "High School Size: Its Relationship to Selected Educational and Cost Factors." Doctoral dissertation. Los Angeles: University of Southern California, 1956.

13. Butterworth, Julian E. and Howard A. Dawson. "The Modern Rural School." New York: McGraw-Hill Book Company, Inc., 1952. 494p.

14. Butterworth, Julian E. "Improving Educational Opportunities in Rural Areas." University of the State of New York Bulletin No. 1322. Albany: New York State Departmnet of Education, August 1, 1946.

15. California Commission on School District Organization. "Problems of School District Reorganization in California." Sacramento: State Department of Education.

16. Campbell, Roald F.; Luvern L. Cunningham and Roderick F. McPhee. "The Organization and Control of American Schools." Columbus, Ohio: Charles E. Merrill Books, Inc., 1965. 553p.

17. Carpenter, C. C. "Characteristics of a Satisfactory Administrative Unit." American School Board Journal 117: December 1948. p. 27-28.

18. Cashen, Valjean H. "High School Size as a Factor in College Academic Success." Journal of Secondary Education 45: October 1970. p. 256-59.

19. Citizens' Committee on School District Reorganization, "How to Plan a New School District," Pierce, South Dakota: South Dakota Department of Public Instruction (Reorganization Bulletin 3.2-1.1), 1970.

20. Clements, Williams H. "A Third Look at High School Size: Academic Success of Entering Freshmen for 1965,1967 and 1968 by Class Size Category." Stevens Point: Wisconsin State University, November 1969. 27p.

21. Coker, David L. "Diversity of Intellective and Non-intellective Characteristics Between Persisting and Nonpersisting Students Among Campuses," Report of the Consortium of Research Development of the Wisconsin State Universities, Stevens Point, Wisconsin: Wisconsin State University, 1968.

22. Collingsworth, B. Jack. "An Analysis of the Relationship of Size of Arkansas High Schools to Selected Qualifications of High School Teaching Personnel." Doctoral dissertation. Fayetteville: University of Arkansas, 1961. 114p. Abstract: Dissertation Abstracts 21: No. 11, 1961. p. 3320.

23. Commission on Illinois School Problems. "Final Report of the School Problems." Springfield, Ill.: the Commission, 1953. p. 78.

24. Committee for Economic Development, Research and Policy Committee. "Paving for Better Public Schools." New York: the Committee, 1959. 90p.

25. Committee for the White House Conference on Education, "A Report to the President," Washington, D. C.: Government Printing Office, 1956, p. 14-22.

26. Cook, Katherine M. (editor). "Reorganization of School Units." U.S. Department of the Interior, Office of Education Bulletin 1935, No. 15, Washington, D. C.: Government Printing Office, 1936. 91p.

27. Cornell, Francis G. "High School Size and Building Cost." American School Board Journal 134: January 1957. p. 40-42.

28. Crocker, Jack W. "The Relationship of Size and Organizational Type of Certain Factors in Alabama's White Public Junior High Schools." Doctoral dissertation. University, Ala.: University of Alabama. 1960. 288p. Abstract: Dissertation Abstracts 21: No. 9, 1961. p. 2529-30.

29. Davis, Roy L. "Quality in School Health Administration." The National Elementary Principal, Vol. 39, No. 4, February 1960.

30. Dawson, Howard A. "Satisfactory Local School Units." Field Study No. 7, Nashville, Tenn: Division of Surveys and Field Studies, George Peabody College for Teachers, 1934. 180p.

31. DeGood, K.C. "Profile of the Small High School." Educational Leadership 18: December 1960. p. 170-72; 182.

32. DeGood, K.C. "The Myths of Reorganization." Columbus: Ohio School Boards Association, February 1968. 7p.

33. Dickenson, Elbert L. "Analysis of the Relationship of Size of Arkansas High Schools to Academic Success of Graduates in the First Year at the University of Arkansas." Doctoral dissertation. Fayetteville: University of Arkansas, 1958.

34. Downey, Lawrence. "The Small High School in Alberta, Canada." Edmonton, Alberta: Alberta School Trustees Association, 1965.

35. Edmonson, J.B.; Joseph Roemer and Francis L. Bacon. "The Administration of the Modern Secondary School." Fourth edition. New York: Macmillan Company, 1953. Chapters 25 and 26, p. 505-46.

36. Engelhardt, N. L.; N. L. Engelhardt, Jr. and Stanton Leggett. "Planning Secondary School Buildings." New York: Reinhold Publishing Company, 1949. "Optimum Size of High School," p. 53-54.

37. Engelhardt, N. L.; N. L. Engelhardt, Jr. and Stanton Leggett. "Planning Elementary School Buildings." New York: F. W. Dodge Corporation 1953. "Size of Schools," p. 178-79.

38. Faber, Charles F. "The Size of a School District." Phi Delta Kappan 48: September 1966. p. 33-35.

39. Feldt, L. S., "Relationship Between Pupil Achievement and High School Size," Research Report from College of Education, State University of Iowa, Iowa City, 1960.

40. Ferriss, Emery N. "Curriculum Demands on the Secondary School of the Future Affecting the Size of the Local School District." Education 53: January 1933. p. 290-97.

41. Fitzwater, Charles O. "Organizing Districts for Better Schools." U. S. Department of Health, Education and Welfare, Office of Education Bulletin 1958, No. 9, Washington, D. C.: Government Printing Office, 1958. 49p.

42. Flanagan, John C. "Project Talent: A Survey and Follow-up Study of Educational Plans and Decisions in Relation to Aptitude Patterns: Studies of the American High School." Cooperative Research Project No. 226. Pittsburgh, Pa.: University of Pittsburgh, 1962.

43. Fonstad, Clifton. "Planning for Better Education in Wisconsin . . . a Guide for Agency School Committees," Madison, Wisconsin: Wisconsin Department of Public Instruction, 1972. 207p.

44. Garcia, Genero Bruno. "Junior High School Size." Doctoral dissertation. Los Angeles: University of Southern California, 1961. 271p. Abstract: Dissertation Abstracts 22: No. 5, 1961. p. 1484.

45. Gaston, G. T. and K. E. Anderson. "The Effect of Size of High School on Achievement of Number One Students," Bulletin of Education, University of Kansas 9: 1952. p. 16-19.

46. George Peabody College for Teachers, Division of Surveys and Field Services. "Organization of School Systems in Georgia." Nashville, Tenn.: the College, 1965. 130p.

47. Gray, Stuart Calvin. "A Study of the Relationship Between Size and a Number of Qualitative and Quantitative Factors of Education in Four Sizes of Secondary Schools in Iowa." Doctoral dissertation. Iowa City: State University of Iowa, 1961. 150 p. Abstract: Dissertation Abstracts 22: No. 8, 1962. p. 2631.

48. Greider, Calvin. "Relation of School District Reorganization to Finance in Business Administration." Review of Educational Research 17: April 1947. p. 167-177.

49. Greider, Calvin; Truman M. Pierce and K. Forbis Jordan. "Public School Administration." Second edition. New York: Ronald Press, 1961. p. 25-27.

50. Hanson, Ellis G. and Ralph D. Purdy. "A Design for Educational Organization in Iowa," Des Moines, Iowa: The State of Iowa, 1968.

51. Hanson, Nels W. "Economy of Scale as a Cost Factor in Financing Public Schools." National Tax Journal 17: March 1964. p. 92-95.

52. Hanson, Nels W. "The Size-Cost Relationship in Public Schools." Trends in Financing Public Education. Proceedings of the Eighth National Conference on School Finance of the NEA Committee on Educational Finance. Washington, D. C. : the Association, 1965. p. 125-33.

53. Harmon, Lindsey R. "High School Backgrounds of Science Doctorates: A Survey Reveals in Influence of Class Size and Origin as Well as Ability in Ph. D. Production." Science 133: March 1961. p. 679-88.

54. Hartung, Maurice L. "Is There an Optimum Size for a High School?" School Review 61: February 1953. p. 68-72.

55. Hoyt, Donald P. "Size of High School and College Grades." Personnel and Guidance Journal 37: April 1959. p. 569-73.

56. Hubbard, Frank W. "How Big is a Good School?" in "Elementary School Buildings: Design for Learning, 1959 Yearbook of the NEA Department of Elementary School Principals." Washington, D. C.: the Department, 1959. p. 110-15.

57. Illinois Department of Public Instruction, "The Illinois Program for Evaluation, Supervision and Reorganization of Schools," Springfield, Illinois: The Office of the Superintendent of Public Instruction, 1971.

58. Inman, William E., "Size and District Organization," Chapter 9 in the Great Plains School District Reorganization Project, "Planning for School District Organization - Selected Position Papers," Lincoln, Nebraska, 1968.

59. Idaho Superintendents Association. "Recommendations--School District Organization." in "Planning for School District Organization for Idaho. Report of the April Conference of the Idaho School District Organization Project." Moscow, Idaho: Bureau of Educational Research and Services, University of Idaho, June 1968. p. 159-75.

60. Jackson, Joe L. "School Size and Program Quality in Southern High Schools." Nashville, Tenn.: Center for Southern Education Studies, George Peabody College for Teachers, 1966. 58p.

61. Jantze, Ralph Dale. "An Analysis of the Relationship of Accreditation, Finance and the Size of Nebraska High Schools to Scholastic Achievement." Doctoral dissertation. Lincoln: University of Nebraska Teachers College, 1961. 79p. Abstract: Dissertation Abstracts 22: No. 4, 1961. p. 1069.

62. Johns, Roe L. and Edgar L. Morphet. "Relation of School District Reorganization to Finance in Business Administration." Review of Educational Research 20: April 1950. p. 115-23.

63. Kent, Walter K. "Educational Opportunities in Nine Reorganized High Schools." Doctoral dissertation (Unpublished). Stanford: Stanford University, 1957.

64. Kleinert, Erwin John. "Effects of High School Size on Student Activity Participation." Bulletin of the National Association of Secondary School Principals 53: March 1969. p. 34-46.

65. Kleinert, Erwin John. "Student Activity Participation and High School Size." Doctoral dissertation. Ann Arbor: University of Michigan, 1964. 106p. Abstract: Dissertation Abstracts 25: No. 7, 1965. p. 3935.

66. Knezevich, Stephen J. "The Administration of Public Education." Second edition. New York: Harper and Row, 1969. p. 113-53.

67. Kowitz, Gerald T. and William C. Sayres. "Cost and Educational Opportunities in Secondary Schools." Albany: New York State Education Department, May 1959. p. 58-62.

68. Kreitlow, Burton W. "Long-Term Study of Educational Effectiveness of Newly Formed Centralized School Districts in Rural Areas." Technical Report No. 133. Madison, Wisconsin; Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, April 1971. 84p.

69. Lane, Willard R.; Ronald G. Corwin and William G. Monahan. "Foundations of Educational Administration." New York: the Macmillan Company, 1967. 433p.

70. Lathrop, I. T., "Scholastic Achievement at Iowa State College Associated with High School Size and Course Patterns," Journal of Experimental Education 29: 1960. p. 37-48.

71. Lins, J. L.; A.P. Abell and H. C. Hutchins. "Relative Usefulness in Predicting Academic Success of the ACT, the SAT and Some other Variables," Madison, Wisconsin: Office of Instructional Studies, University of Wisconsin, October, 1964.

72. Livingston, A. Hugh. "Is There an Optimum Size High School?" Progressive Education 33: September 1956. p. 156-59.

73. MacVittle, Robert W. "Are Our Elementary Schools Too Large?" Nation's Schools 53: June 1954. p. 56-57.

74. Maxey, E. James and Donald R. Thomas. "Selected Comparisons of Teacher and Curriculum Characteristics and Size of High Schools." in "Planning for School District Organization: Selected Position Papers." Lincoln, Nebr.: Great Plains School District Organization Project, June 1968, p. 86-101.

75. Mays, S. S. "What Size High School?" American School Board Journal 144: January 1962. p. 32-33.

76. McCowan, Richard J. and Robert P. "Relation of Size of High School Enrollment to Educational Effectiveness" Albany, New York: Mimeographed report: State Education Department, 1968.

77. McLure, William P. "Financing Public Education in Mississippi." University, Miss.: University of Mississippi, Bureau of Educational Research, 1948. p. 16.

78. McLure, William P., Chairman, "Education for the Future of Illinois." Report of a Study by the Task Force on Education. Springfield, Illinois: State of Illinois, 1966.

79. Menozzi, John. "An Attempt to Determine the Optimum Size of Public Secondary Schools." Doctoral dissertation. Denver: University of Denver, 1959.

80. Miller, Van. "The Public Administration of American School Systems." New York: the Macmillan Company, 1965.

81. Minnesota Public School Survey Committee. "Summary of Phase I." St. Paul: the Committee, February 1969, 18p.

82. Missouri School District Reorganization Commission, "School District Organization for Missouri, A Plan to Provide Equal Access to Educational Opportunities for All Children," Jefferson City, Missouri: Missouri School District Reorganization Commission, 1968.

83. Monahan, William Welsh, Jr. "Teacher's Knowledge of Students Related to Urban High School Size." Doctoral dissertation. Berkeley: University of California, 1965. 153p. Abstract: Dissertation Abstracts 26: No. 2, 1965. p. 830-31.

84. Morgan, Don L. "The Relationship of the Distance from Home to School Upon Participation in Extracurricular Activities." Iowa City: University of Iowa, January 1967. (Mimeographed report).

85. Morphet, Edgar L. and John G. Ross. "Local Responsibility for Education in Small School Districts." Legislative Problems No. 1. Berkeley: Bureau of Public Administration, University of California, 1961.

86. Morphet, Edgar; Roe L. Jons and Theodore L. Reller. "Educational Organization and Administration." Second edition. Englewood Cliffs, N. J.: McGraw-Hill, 1967. p. 322-25.

87. Morris, Harold J. "Relationship of School Size to Per Pupil Expenditure in Secondary Schools in Nine Southern States." Doctoral dissertation. Nashville, Tenn.: George Peabody College for Teachers, 1964. 117p. Abstract: Dissertation Abstracts 25: No. 11, 1965. p. 6344-45.

88. Nanninga, S. P. "Cost of Offerings of California High Schools in Relation to Size." Journal of Educational Research 24: December 1931. p. 356-64.

89. National Academy of Education, Committee on Educational Policy. "Policy Making for American Public Schools." (Ronald F. Campbell, committee Chairman). Printed for use of the Committee on Education and Labor, House of Representatives, 1969. 31p.

90. National Commission on School District Reorganization. "A Key to Better Education." Washington, D. C.: Department of Rural Education, National Education Association, 1948. p. 131.

91. National Commission on School District Reorganization. "Your School District," Washington, D. C.: Department of Rural Education, National Education Association, 1948. p. 131.

92. National Education Association, Department of Elementary School Principals. "The Elementary School Principalship--Today and Tommorrow, Twenty-seventh Yearbook." Washington, D. C.: the Department, 1948. (Chapter 3, "School Enrollment and Building Facilities"). p. 42-53.

93. National Education Association, Research Division. "Trends in City-School Organization, 1938 to 1948." NEA Research Bulletin 27: February 1949. ("Size of Schools and Classes," p. 35-37.)

94. Nation's Schools. "What School Size is Best?" School Opinion Poll. Nation's Schools 54: October 1954. p. 59.

95. Nelson, Thomas L. "A Comparison of the Achievement of Pupils of One or More Teachers with that of Pupils in Schools with Eight or More Teachers." Doctoral dissertation. (Unpublished). Berkeley: University of California, 1932.

96. New Jersey Education Association, "Quality Education and Size," NJEA Review 42:30, p. 32-35.

97. Ohio Education Association. "The Relationship Between Academic Achievement of Students in College and the Size of High School from Which They Were Graduated, Report of the Education Council." Columbus: the Association, 1959. p. 7-10.

98. Oliver, A. I. "How Big Should the Small School Be?" School and Society 69: February 19, 1949. p. 127-28.

99. Oklahoma Department of Education, "An Assessment of Educational Needs for Students in Oklahoma," Oklahoma City, Oklahoma: 1970.

100. Opstad, Paul E. Non-Scholastic Factors Associated with Dropouts from Public Schools in Iowa. Doctoral dissertation. Iowa City: University of Iowa, 1958. 233p. Abstract: Dissertation Abstracts 19: No. 3, 1958. p. 472-73.

101. Oregon State Board of Education, "Minimum Standards for Public Schools," Salem, Oregon, Adopted by the State Board, September 14, 1966.

102. Packard, J. C. "School District Size vs. Local Control" American School Board Journal 146: February 1963. p. 9-10.

103. Patterson, Harold D. "Relationship Between Size of Secondary School and Selected Teacher Characteristics." Doctoral dissertation. Nashville, Tenn.: George Peabody College for Teachers, 1964. 96p. Abstract: Dissertation Abstracts 25: No. 11, 1965. p. 6348.

104. Peck, Roderick B. "The Influence of Enrollment and Expenditures Upon Quality of Education in Iowa School Districts Maintaining High Schools." Doctoral dissertation (Unpublished). Ames: Iowa State University, 1952.

105. Project Staff, "A Master Plan for School District Organization in Ohio," Columbus, Ohio: The State Department of Education, 1966. pp. 126-127.

106. Project Staff, "Planning for School District Organization, Selected Position Papers," Lincoln, Nebraska: Great Plains School District Organization Project, p. 173.

107. Purdy, Ralph D. "The Size Factor as Recommended by State Association for School Administrators in Ohio." in "Planning for School District Organization: Briefs of Position Papers." Lincoln, Nebraska: Great Plains School District Organization Project, May 1968. p. 146-47.

108. Rajpal, Puran L. "A Study of Relationship Between Expenditures and Quality Characteristics of Education in Iowa Public Schools." Doctoral dissertation. Iowa City: University of Iowa, February 1967. 175p. Abstract: Dissertation Abstracts 28: No. 2, August 1967. p. 443.

109. Recommendations of the Ohio Department of Elementary School Principals, 1966. (b) "Guidelines for School District Organization in Ohio," Miami, Ohio: School of Education (c) Ohio Association of Secondary School Principals Recommendations, 1966.

110. Riew, John. "Economics of Scale in High School Operation." Review of Economics and Statistics 48: August 1966. p. 280-88.

111. Rimm, Sylvia B. "The Relationship of High School Size to College Performance of Freshmen at University of Wisconsin," Unpublished Master's Thesis, Madison, Wisconsin: University of Wisconsin 1971.

112. Robinson, Glen. "Principals' Opinions About School Organization." National Elementary Principal 41: November 1961. p. 39-42.

113. Rosenberg, Neal E. "School Size as a factor of School Expenditure." Journal of Secondary Education 45: March 1970. p. 135-42.

114. San Antonio Independent School District "The Highlands High School." American School Board Journal, Vol. 138, No. 1, Januray 1959. p. 14-16.

115. Schloerke, Wallace C. "Does Bigness Insure Quality?" Michigan Education Journal 42: May 1, 1965. p. 20-21.

116. Shapiro, David Franklin. Relationship of High School Size to Staff Relations. Doctoral dissertation. Stanford, Calif.: Stanford University, 1958. 236p. Abstract: Dissertation Abstracts 18: No. 4, 1958. p. 1324.

117. Shoemaker, Byril. "Vocational-Technical Education and School District Organization" in "Planning for School District Organization: Selected Position Papers." Lincoln, Nebraska: Great Plains School District Organization Project, June 1968. p. 119-51.

118. Smith, Clifford B. "A Study of Optimum Size of Secondary Schools." Doctoral dissertation. Columbus: Ohio State University, 1960. 172p.

119. Smith, Fay W. "An Analysis of the Relationship of Size of Arkansas High Schools and the Achievement of College Bound Seniors." Doctoral dissertation. Conway: Arkansas State University, 1961.

120. Sollars, Ralph D. "The Relationship of Elementary Schools to Operational Cost and Program Quality." Doctoral dissertation. Columbus: Ohio State University, 1962. 174p. Abstract: Dissertation Abstracts 23: No. 9, March 1963. p. 3214.

121. South Carolina Department of Education, "Defined Minimum Program" working draft of a report on minimum educational programs, Columbus, South Carolina: 1972.

122. Spaulding, Francis T. "High School and Life. The Regents Inquiry." New York: McGraw-Hill Book Company, 1938. 377p.

123. State Commission on the Quality, Cost and Financing of Elementary and Secondary Education,"Commission Report, Summary of Volumes II and III," Albany, New York: The State Education Department, October 1972. New York Education Department "A Guide to School District Reorganization for New York State," Albany, New York: The State Education Department, 1958.

124. Street, Paul; James H. Powell and John Hamblen. "Achievement of Students and Size of School." Journal of Educational Research 55: March 1962. p. 261-66.

125. Strong, Will R. "An Analytical Comparison of Large and Small Schools with Respect to Achievement of Pupils and Attitudes of Teachers." Doctoral Dissertation. Bloomington: Indiana University, 1964. Abstract: The Reporter 16: May 1965 (Published by the Central New York School Study Council, Syracruse University).

126. Theophilus, Wadhawa Singh. "Relationship Between Size of School and Expenditures and Quality of Education in Elementary Schools." Doctoral dissertation. Ames: Iowa State University, 1954.

127. "Toward Excellence in Education." Madison, Wisconsin: Wisconsin State Department of Public Instruction, 1965.

128. Trump, J. Lloyd. "How Large Should a School Be?" Mimeographed statement distributed by the National Association of Secondary School Principals, 1963. 2p.

129. Turner, Claude C. and James M. Thrasher. "School Size Does Make a Difference." San Diego, Calif.: Institute for Educational Management, 1970. 44p.

130. Turner, Harold E. "The Relationship of Curriculum to School District Organization." in "Planning for School District Organization: Selected Position Papers." Lincoln, Nebr.: Great Plains School District Organization Project, June 1968. p. 59-85.

131. Tyson, James Carrole. "A Comparative Study of Teacher-Pupil Relationships in Small and Large High Schools." Doctoral dissertation. Charlottesville: University of Virginia, 1957.

132. Vars, Gordon F., editor. "Guidelines for Junior High and Middle School Education: A Summary of Positions." Washington, D. C.: National Association of Secondary School Principals, 1966. p. 21-22.

133. Washington State Planning Council. "A Survey of the Common Schools of Washington." Olympia, Washington: The Council, 1938. 128p.

134. Weaver, Charles H. "An Investigation of the Influence of Size on the Quality of the High School." Doctoral dissertation. Chapel Hill: University of North Carolina, 1961. 237p. Abstract: Dissertation Abstracts 23: No. 2, 1962. p. 516.

135. West Virginia Department of Education, "Educational Needs Assessment Report, School Year 1970-71, Number Four," Charleston, West Virginia: June 1972.

136. Whitt, Robert L. "Structuring Education for Business Management" in "Planning for School District Organization: Selected Position Papers," Lincoln, Nebraska: Great Plains School District Organization Project. June 1968. p. 204-24.

137. Wisconsin Department of Public Instruction, "Toward Excellence in Education," Madison, Wisconsin: 1965.

138. Woodham, William J. "The Relationship Between the Size of Secondary Schools, the Per Pupil Cost and the Breadth of Educational Opportunity." Doctoral Dissertation. Gainesville: University of Florida, February 1951. p. 185.

139. Woods, Thomas E. "Relationship of High School Size to Curricular Offering." Doctoral dissertation. Stanford, Calif.: Stanford University, 1957. 152p. Abstract: Dissertation Abstracts 18: No. 2, 1958. p. 481-82.

140. Wyoming Department of Education, "A Guide for Planning School District Organization in Wyoming," Cheyenne, Wyoming: 1969.

NOTE: The following publications review much of the literature concerning factors related to school and school district effectiveness. They are suggested as valuable resources for those studying in this area.

"Size of Schools and School Districts" (ERS Information Aid No. 8), Washington, D.C.: Educational Research Service, June, 1971 (available from Educational Research Service, Box 5, NEA Building, Washington, D.C. 20036 - $1.00 per copy).

Hickey, Michael E., "Optimum School District Size," Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, 1969.

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